The Builder.

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The Roman Station at Newstead.

THE Roman military station at Newstead, near Melrose, so far as the explorations and investigations have been carried out, places it among the most important and interesting remains of the occupation of Britain by the all-conquering invader from Italy. The number, quality, and variety of the miscellaneous objects which the spade and the pick have brought to light, and the revelation of the construction and details of this station, prove to be of great value to archæology. But while much has been done, much still remains to be done before it can be properly said that it has yielded up its last treasure to the antiquary.

Excavations were undertaken under the auspices of the Society of Antiquaries of Scotland—a body which has done such good work in this respect throughout the length and breadth of ancient Caledonia, a body whose labours have proved it to stand second to none in regard to the magnitude of its efforts for the advancement of archæological knowledge; and its researches were carried out during the past year with continuous ardour. These have succeeded, beyond expectation, in bringing to light many matters of which we shall proceed to give account of the most prominent. Detailed understanding of the principle on which the defences are constructed has been largely advanced, but the money at the disposal of the Society has been nearly all spent, and there still remain several sections of the necessary work to be carried out when funds permit this to be done. Part of the camp itself still awaits exploration. The northern and western defences have not yet been taken in hand, the eastern annexe has not been so fully explored as it should be, and the western annexe is known to comprise edifices which demand examination, all the more so because it is likely to yield evidence of dates of occupation. The cemetery, which cannot be far away, has up to the present eluded discovery, and must be sought for, and the foundation of the bridge across the river Tweed, leading to other more northerly stations, has not yet been located.

Most of the systematic efforts recently made have been directed to certain edifices lying in the "Red Abbeystead" field, and to a curious series of pits or wells which were found in the field called the "Fore Ends," which lies just outside the southern boundary of the fort. From these pits a collection of objects has been gathered of altogether exceptional archæological value. It is known that sections cut through the fortifications on the south and east sides in the year 1905, revealed, as reported by the Society, in every case an ample foundation of cobbles in front of the main rampart, relieved at irregular intervals with blocks of red sandstone. This suggested the existence of a wall, and although it was not struck upon at that time, the more recent work on the west side has corroborated the supposition, and a portion of the actual wall, in good preservation, has been uncovered, showing a "scarcement" course of blocks of sandstone, resting on the cobble stones, and supporting above it at least two courses of well-built squared stonework, no less than 7 ft. 6 in. in thickness. The investigators caused some part of the ditch of the early fort on the south to be cleared out, in hope of finding some evidences which might point to the period of its construction. This resulted in the recovery of some coins of Domitian and Vespasian from the black deposit at the bottom, and a number of fragments of fictilia and glass, the character of which is declared by experts to leave little doubt that this early fort forms a link in the chain of Roman defences belonging to the first Roman invasion of Scotland, known as the Invasion of Agricola. Within the actual area of the fort, that part which lies to the east of the main street, or "Via Principalis," was explored. It was found to be occupied by a series of rows of edifices, running in the direction of east and west; six parallel blocks having been built to the north of the main street leading to the east gate, and as many to the south of it. Outside blocks appear to have been single, intervening blocks double; and these long blocks of buildings, a common occurrence in Roman forts, probably sheltered the soldiery, as it were, in barracks. Here a peculiarity was found; each block was subdivided

into eleven small tenements or huts, not continuous, but detached from each other by a narrow intermediary vacancy. The dimensions of each of these small apartments averaged 15 ft. wide and 30 ft. long, but there was variation in the widths.

At this locality, among other objects, was recovered a fine vessel of bronze, not unlike a hydria or ewer, 11 in. high, and furnished with a beautiful handle, the upper part of which takes the form of a lotus bud, from which issue arms resembling long-beaked birds to grasp the rim of the jug. At the lower part, where the handle is fixed to the body of the relic, it finishes off with the head of a Bacchanal, the hair being, after the classical mode, enwreathed with ivy tendrils. Other objects recovered from the site of these barracks consist of two bowls of so-called Samian ware, with that red glaze so beautiful to the educated eye of the connoisseur of Roman pottery. One of these adorned with panels and circular plaques containing full-length figures of deities in elegant and lifelike attitudes, and enriched with the conventional bordering which is so constantly found on the specimens of this ware, bears the inscription CINNAMI, which is identified with Cinnamus, a potter of Lezoux, who records his name on ware known to belong to the Antonine period. Many coins, some small enamelled studs, *fibulæ* or pin-brooches, and parts of bronze mountings, are also included in this find.

In the course of the last summer the Prætorium, the most important building, and that occupying a commanding central position in the plan, was cleared of its covering of earth, and subsidiary edifices, situated on the north and south sides of it, were further examined. On the south side we meet with a buttressed house of no unusual type, believed to have served as a storehouse, and adjacent to it, on the south again, a large square house provided with an interior courtyard, identified as the quarters of the commandant. These were plotted out in 1905, but recently some details have been ascertained and added to the plan. Similarly, in a corresponding position on the north side of the Prætorium, occurs a second buttressed house, thought to be destined for stores, and there are indications of another large edifice, ranking in area, and probably use, with the courtyard house already mentioned, still further to the north, and almost abutting on the north boundary, but the remains of this last are very fragmentary, a fact perhaps owing to their proximity to the surface, and consequent exposure to the destructive agencies of the weather and the plough. While occupied in the examination of this site, a well was met with, about 19 ft. in depth, which rendered up a grinding quern of "Andernach" lava, in perfect preservation; a *mortarium* almost perfect; some fragments of *amphoræ*, or two-handled wine jars; a copper vessel, much battered, of the shape of a kettle, with barrel-shaped body and lipped mouth or rim, bearing the centurial mark, and the pricked letters "S. A.," but without handle (although called a kettle in the Society's report); and two spear-heads.

Careful investigations of the central building, or Prætorium, clearly indicate that alterations have been effected in it, tending to show that it had been used during two distinct periods, if not more. At first the normal type seems to have prevailed. The *Via Principalis* opened into the outer court, or square, which was surrounded by an ambulatory or colonnaded passage. Passing through this court westward one came to an inner courtyard, of less dimensions, having on the west side the five chambers usually found in buildings of this style. The alterations of a later date than the first plan reveal a vault, or treasury, constructed beneath the floor of the central apartment or *Sacellum*, and the levels of the large court were raised, probably to accommodate in part the construction of this underground strong-room, while the colonnade on the south side of this court was thrown forward. Lastly, a large hall was put up in front of the whole building, covering in that part of the Via Principalis which fronted its façade, and extending laterally as far as the corners of the storehouses already described as situate immediately on the north and south sides of the chief building. This late addition of a vault, strong-room, dungeon, or hiding-place under the inmost part of the principal edifice, has been observed to occur in other sites, and the amplification of the covered area by the later construction of the hall, extending beyond the original front and sides, is found in several plans of German forts, but it is believed to be a new feature of the forts hitherto explored in Britain. Among the relics gathered up in the course of clearing the superincumbent earth from the Prætorium several especially good objects were met with, such as a *fibula*, or brooch, in good condition; portions of a bronze *lorica*, or breastplate, for a soldier perhaps of superior rank; and fifteen coins, ranging from an early legionary *denarius* of Mark Antony, 43—31 B.C., to a coin of Marcus Aurelius, A.D. 161—180. But here, as in other places within this stronghold, the greater number of pieces of money belonged to the reign of Vespasian, A.D. 69—79. Mr. James Curle, of Melrose, reports to the Society, that below the level of the earlier Prætorium a still earlier level of occupation appeared, from which the denarius of Mark Antony and one of Vespasian, were recovered, and also the foundation of a large building situate immediately to the south of the Prætorium, but not in alignment with it, corroborates his views as to the existence of this primal occupation. Although this remarkable plan has not yet been fully staked out, it is known that its west wall jutted out a little beyond that of the southern storehouse, and that the north wall passes partly beneath it. Here it may be asked whether the building thus indicated by its foundations is to be attributed to the early or to the late occupation of the fort. Mr. Curle says:—"It might at first sight be assigned to Agricola, were it not that the alterations of the gate and ditches indicate the possibility of four definite periods. The problem involved is one of considerable difficulty, and adds in no small measure to the interest of the site." Protected as it was by the buildings at the front and sides, the Prætorium was still further supported by a large square edifice to the west of it, lying in the angle between the "Via Quintana" and the west gate road; and, again, to the north of this is apparently a further portion of barrack rooms, still unexplored.

Late in 1905 the lines of the two parallel Roman roads leading from the south of the fort were examined, and a very interesting pit, of no great depth, was met with, containing a large bowl of the so-called Samian ware, decorated with designs; a large bluish-coloured glass bottle with square base, of the kind generally associated with cinerary obsequies; and some calcined bones. This discovery leads the explorers to hope that on the site of the pits found in 1840, in the space between it and the railway cutting, more discoveries of a like nature may yet be made. Along the north boundary parallel trenches were opened, and at the west end a considerable area was examined, with the success of finding no less than fourteen well-sinkings or pits, the depth of which varied between 10 ft. and 30 ft. Their *débris* consisted of a thick deposit of black earth, mixed up with a copious amount of twigs, decayed vegetation, and animal bones, the rubbish of centuries, during which time these pits, if not fully choked, must have proved so many death-traps to numerous and various wandering creatures, who, once having fallen or leapt in, could never hope to regain liberty. This also contained, in its lowest layers, many objects of much interest, which may be compared with the subterranean harvest gathered at Silchester and other Roman places.

Mystery must always cling round the cause which acted on the minds of those who deliberately cast things of value at that time ruthlessly away into these deep receptacles. Why tools, weapons, parts of armour, leathern articles, *fictilia*, and even wooden objects, should have been thrown in large numbers into these wells is a question which requires some reflection to answer. Does it point to a sudden abandonment in the face of a hostile force of overwhelming superiority, to a *débâcle*, or *sauve qui peut*, when the occupants of the fortification thus dealt with their property to avoid leaving them to the enemy? Or does it speak, silently but none the less eloquently, of a wanton destruction of things left behind at the withdrawal of the Roman power from Britain, when doubtless much besides earthworks, houses, and walls was reluctantly left behind as the soldiery withdrew, more or less strategically, to points not so distant from the eternal capital of their Empire? The stillness of the air in these sinkings, and the kindly enwrapping of the peaty-natured earth around them, have combined to retard decay, and hence the wonderful state of preservation which most of these relics exhibit may be accounted for.

From these miscellaneous *rejectamenta* a few of the military relics may be selected for notice. A helmet of iron, furnished with a visor in the form of an heroic or celestial face, with locks of hair falling in conventional curls over the head, the brow, and down the cheeks in front of the ears, and having an attachment for a plume. This must be the helm of a patrician commander of the highest military rank, for no subordinate officer could have worn so costly and

pre-eminently attractive a headgear. It may be compared with the helmet now on view in the British Museum from the Roman fort at Ribchester, or with one at Stuttgart from Bettenberge, as is pointed out in the report. A brazen helmet, richly embossed with figures in bold relief of a charioteer driving a panther or seal-like nondescript animal at full speed, with a background of large leaves and rosettes, recalling the type of helmet found in South-Western Europe. This, like the copper kettle already described, has a punctured inscription on the rim, but the import of the lettering has not yet been ascertained. A plain helmet of iron. Four parts of bronze armour, perhaps for shoulders and arms, also bearing punctured numerals, and one of them also bearing the name of SENECIO or SENECIONIS sharply scratched on it. Disks of bronze, circular and cardiform, fitted with little nuts to fasten them to leather; each of these, eight in all, bears the *graffito* of DOMETI ATTICI. A circular copper *umbo*, or embossed central plate of a shield. An iron stay to strengthen the back of a shield. And, lastly, two swords, upwards of 30 in. in length, and spear-heads of leaf-shape, one with a punctured inscription.

Mention may be made of the tools, comprising a saw with a deer's horn handle, a chisel similarly provided with handle, gouges, smith's tongs, hammers, a pick, a mattock, anvils, axes for pioneer work, one bearing the name of the maker, ATTICUS, stamped on it; an axe stamped L. G. R., a smith's "drift," scythes, a billhook, and other utensils appertaining to smiths, farriers, and carpenters. The miscellaneous remains include a finger-ring, a style, a chain, bridle-bits, one very nicely made with twisted portions, and so constructed as to give enormous power of control over the unfortunate horse to which it was applied, an imperfect gridiron, the legs of a couch, beautifully forged, a linch-pin, harness, iron framing of a saddle, a stirrup, hub-rings of chariots, mountings and unfinished smith work, and a small bronze kettle, much valued, if the patchings which betray its frequent visits to the repairing-shop have any meaning. This notable relic has the name LUCANI scratched on the bottom. The names of makers, and perhaps also owners, generally appear in the genitive case by an ellipsis which requires the supplying of some such phrases as *ex officinâ*, "from the factory of," or *manu*, "by the hand of," etc. Two wheels of chariots, measuring 3 ft. in diameter, with their felloes constructed of a single piece of ash-tree wood rimmed with iron, and its hubs of elmwood bushed with the same metal. An oaken pail, with iron handle and fittings, and a yoke. The pottery specimens, in addition to Samian types, include a large blackware jar, and a small urn of the well-known Castor-ware, enriched with the design of a deer hunted by hounds, and accompanied by peculiar, beadlike border lines, which resembles very closely that figured in the late Dr. S. Birch's "Ancient Pottery" (1873 edit., p. 578). The stone articles are two complete querns of hard "Andernach" stone with spindles and iron mountings.

The leathern objects are shoes and portions of dress. Some of the shoes for women are cut with a reticulated or somewhat irregular open-work pattern, *ajourés*, the men's shoes furnished with ankle-straps, back-straps, and eyelet-holes for the latchet, and liberally provided with hobnails where the sole and the upper close together, as well as interspersed over the sole. The example figured by the reporters of the finds seems to have a design almost like a monogram in nail heads on the sole. Bones, skulls of the horse, and many other interesting objects fill up the tale of the finds rescued from oblivion in this restricted area of about 300 ft. in length by 100 ft. in width, and its vicinity. Water was laid on by means of jointed clay pipes, drains carried away waste waters, hypocausts betoken the use of the bath, and other signs of the luxuries of the age are not wanting. It is perhaps strange that no tessellations have been mentioned where so many things point to a number of epochs of constructive alteration. The things found may be advantageously compared or contrasted with those forming units in the great collections of the late Charles Roach Smith now in the British Museum, and the subsequent additions to the national collections, and in the private collections of the late Mr. H. Syer Cuming, the Rev. S. M. Mayhew, and other ardent Roman relic hunters.

We have described this noteworthy station in detail, as, indeed, its character and contents merit. It has much that is common to other stations, and much that renders it unique. As an example of the Roman military talent it has a paramount claim to study and investigation by the antiquary and the student of human progress, who will find types that have long become obsolete side by side with types that are as much in use to-day as when these ancient, long-buried specimens were bright and new, and almost warm from the hands of those who fashioned or those who employed them. They now stand to mark the rapid rushing away of nineteen centuries, and under the intelligent care of the Society which has been instrumental in finding them will be as instructive thousands of years hence to future research as they are to us to-day.

NOTES.

The Rebuilding of Kingston. IN an article contributed to the *Times*, Mr. Charles Davison, formerly secretary to the Earth Tremors Committee of the British Association, points out the extremely unfavourable character of the site whereon Kingston is founded. Consisting of sand and gravel brought down from the mountains, it is, like the soft material at San Francisco, liable to much greater disturbance and wavelike action than firmer earth. In our "Note" of June 2, 1906, dealing with the earthquake at the last-mentioned city, we pointed out the serious nature of the undulations in surface ground as compared with the tremor in the rock formation beneath. Still, however clearly this fact may be recognised, it is not always possible to change the situation of an important town, especially when proximity to a good harbour is an essential point. So far as we are aware there is no site in the immediate neighbourhood of greatly superior stability upon which Kingston could be rebuilt, and if we are right in this view, the only thing is for the authorities to insist upon the application of the most modern systems of earthquake and fire-resisting building construction as a *sine quâ non* in connexion with the restoration of the town.

The State of the Building Trade. THE half-yearly speeches of Sir Felix Schuster, the Chairman of the Union and Smith's Bank, are always read with interest and profit, for no one is a higher authority on financial and economic subjects or speaks on them more judiciously. In Sir Felix's recent address, as it may be called, reviewing the general prosperity of the country, he finds the only exception to be the building trade, which remains in a depressed condition. The speaker was careful to guard himself against giving a final opinion on the subject, but he seemed to consider the two chief causes of the state of things to be the high income-tax and the burden of local rates. It is probable that these are two causes. We are inclined to think that a third cause is that building in the last ten years has been somewhat overdone, and that less work is, therefore, now to be had by the artisans. The high wages and the general advance in the cost of labour is probably also another cause. It will not pay proprietors of land, we are constantly told, to build cottages at the present rates; hence cottage building is at a standstill. The speculative builder still goes ahead, but the careful capitalist spends as little as he can on bricks and mortar.

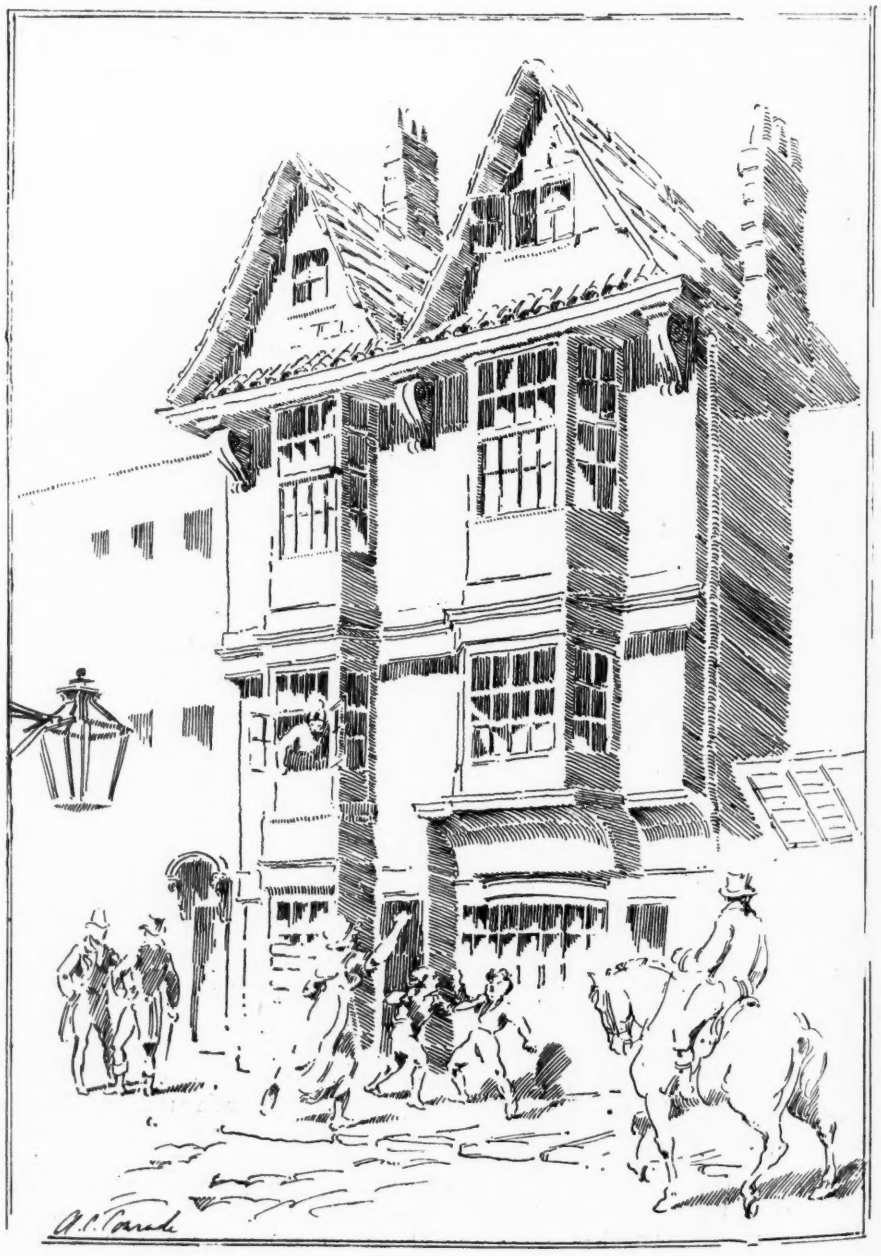
Leeds Sewage Disposal. THE ratepayers of Leeds appear to be much concerned at the enormous cost of their proposed sewage scheme, and a poll of ratepayers has been demanded for the purpose of ascertaining the opinion of the inhabitants as to the proposals of the Corporation. In a short history of sewage disposal in Leeds, the *Yorkshire Post* points out that the subject has been of primary importance ever since the completion of the town sewers in 1855. Various methods of so-called purification have been tried from time to time, but none of them has succeeded in doing more than effecting a slight abatement of the nuisance. The river Aire has practically been turned into a public out-fall sewer, not only by Leeds, but by other towns in the West Riding. Pressure is now being exerted by the River's Board, and further delay is out of the question. Exhaustive experiments have been carried out under the late Colonel Harding, by Mr. Dibdin, and also by Mr. Harrison and others, and the scheme now proposed is for preliminary chemical precipitation in tanks in order to get rid of matter in suspension, followed by percolating filtration. Contact-beds are considered to be inferior to percolating filters. In order to reduce the amount of pumping at the out-fall, a new high-level sewer is to be constructed at an estimated cost of 204,000*l*. One thousand acres of land near Templenewsam are to be bought at a cost of 231,000*l*., and

the total estimated cost is 1,353,000*l.* This will involve an additional rate, rising from ¾d. in the pound in 1908 to 6¾d. in 1917. It is little to be wondered at that the ratepayers are concerned about this increase of their already heavy burden. Two points, however, must be remembered, the first being that something must be done to remedy an admittedly bad state of things; and the second, that although finality has not been reached in the science of sewage-purification, so much has been learned during the last ten years that there can be little doubt of the success of the scheme now proposed by the Corporation. Whether the land selected is in the most convenient position is a matter which only local inquiries can decide; but the Sewage Committee has devoted so much time to the subject that it will be a great pity if the ratepayers, who are obviously less well informed, reject the scheme.

Liabilities under the Private Street Works Act. THOSE who are liable to local authorities for the amount of the expenses apportioned under the Private Street Works Act, 1892, in respect of their premises, will do well to consider the recent case of Corporation of West Ham *v.* Sharp. In that case the Corporation brought an action in respect of a balance of such apportioned expenses remaining unpaid in which they sought for a declaration that they were entitled, under sect. 13 of the Private Street Works Act to a charge on the premises with interest, from the date of such apportionment, and that the said charge was entitled to priority over any other mortgage or charge on the premises. They also asked for an inquiry as to the incumbrances on the premises, and applied for a sale of the premises. Sect. 13 of the Private Street Works Act, 1892, gives the local authorities the same powers as mortgagees have under the Conveyancing and Law of Property Act, 1881, for selling the property and appointing a receiver, and the County Court Judge had found that having regard to these powers the action was unnecessary, but the Divisional Court has held that even if the action was not absolutely necessary yet the plaintiffs were entitled to have recourse to the alternative remedy by action if it was convenient. The case is only at present shortly reported; see the *Law Times*, 26th ult.

Vendor and Purchaser. THE case of *In re* Weston and Thomas's Contract should be noted by vendors. Some ground rents were sold by auction under conditions of sale in the usual form, providing that if the purchaser should insist on any requisition "which the vendors shall be unable, or on the ground of difficulty, delay, or expense, or on any other reasonable ground, be unwilling to comply with," then they should be empowered to annul the sale, returning the deposit but without interest, costs, or compensation. It appeared that if the vendors should survive when the lease under which the houses on the property were held should determine, a small sum of succession duty would become payable: This lease had about thirty-two years to run, and the ages of the beneficiaries would, by that time, have been respectively ninety-eight, ninety-seven, and ninety-two. The purchaser requisitioned the vendors to commute this charge or to give an undertaking that they would do so. The vendors writing "without prejudice" refused to do this, the contingency being so remote, but offered to give an indemnity, and failing acceptance of this offer claimed to annul the sale. The Court held that a letter written "without prejudice" was not a valid notice of rescission, that the purchaser was entitled to have the charge cleared, and was not bound to accept an indemnity, and that the vendor had shown no "reasonable cause" or "difficulty, delay, or expense," which would excuse them from assessing and commuting the duty, and as they had purported to rescind the Court gave costs against them. We have noticed several cases recently in which the Courts have very strictly interpreted these contracts of sale, and serious injustice would be done to purchasers were vendors able arbitrarily to dictate what information or requirements they would comply with. The present case shows that the legal maxim *de minimis non curat lex* must not be too confidently relied upon.

Electricity Meters. THE revised rules for testing electric meters which are recommended by the Highways Committee of the London County Council will meet with general approval. In the case of disputed meters the minimum charge for testing a meter is ten shillings, and considering the labour involved owing to the high standard of accuracy adopted this cannot be considered excessive. The number of cases in which consumers dispute the accuracy of their meters is small, and we think that their confidence in them is justified. As a rule the supply company's engineer is more keenly alive to possible defects in the meters he provides than the consumer, and the tests he makes enable him to test their calibration. The general adoption of high pressures and the increasing number of small consumers make it imperative that meters should work when the load is only one lamp, and it is extremely difficult to get them to register accurately at this load and at the greatest load at the same time. Supply engineers, however, having insisted on accurate meters, manufacturers are now supplying them. The Committee have made no special charges for testing meters on alternating current circuits which have to register the

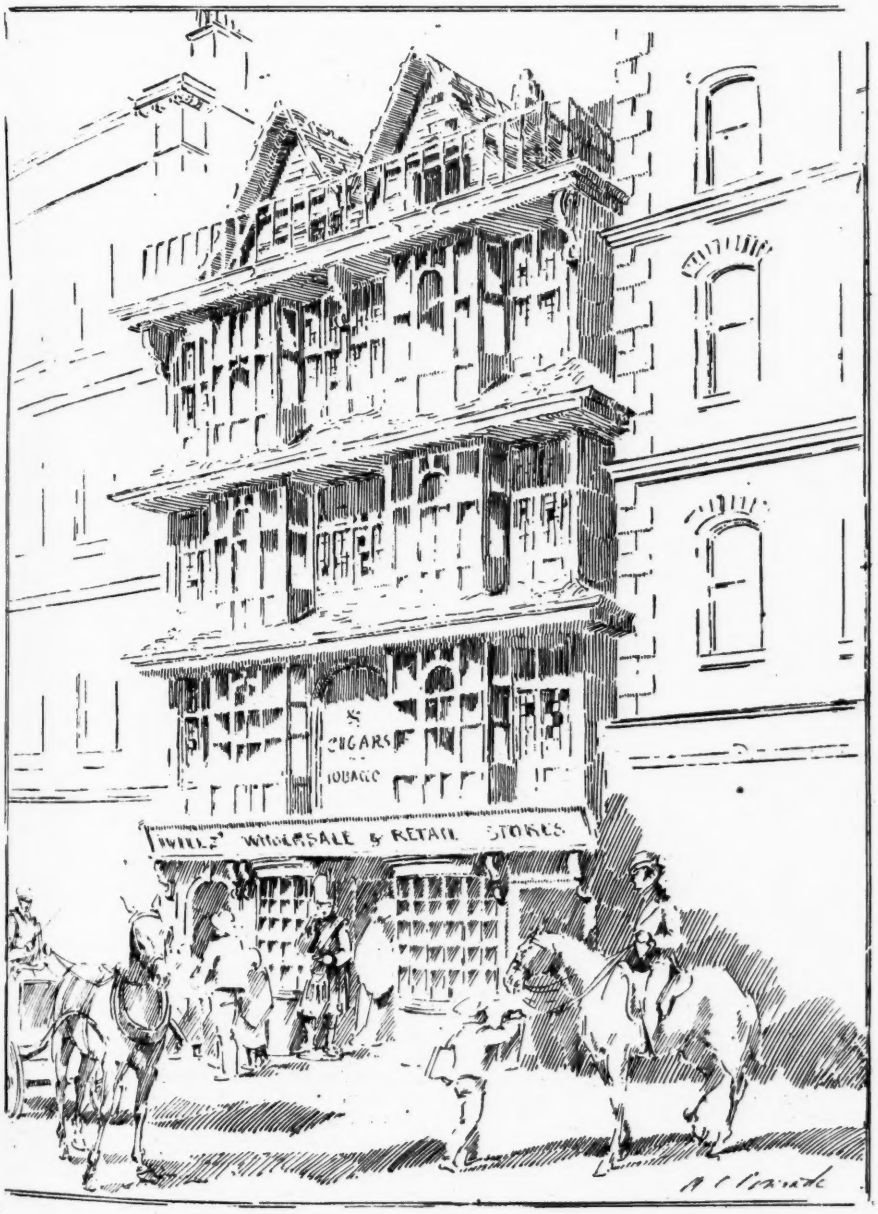


Old Houses, Thomas-street, Bristol. From a Sketch by Mr. A. C. Conrade.

energy consumed by arc lamps and motors. This type of meter is very troublesome to calibrate, as the power consumed is no longer the product of the volts and amperes, and the rate of the meter varies with the nature of the load. The charge for a County Council Inspector to test meters in position is 1*l.* per day. Those consumers who think that the supply company do not maintain the electric pressure at their terminals constant can have a chart of the pressure for twenty-four hours for 10s., and the same charge is made also for testing the insulation resistance of their wiring. It is in the interests both of the consumers and the supply companies that the meters be accurate. As a rule, the consumer has to pay the fee when the disputed meter is found to be sufficiently accurate, and if found inaccurate the manufacturer usually pays unless he has reason to believe that it has been improperly fixed, or that it has received rough treatment.

Alloys Research.

On Friday last week the "Eighth Report to the Alloys Research Committee on the Properties of Alloys of Aluminium and Copper" was read before the Institution of Mechanical Engineers. This important investigation was conducted by Professor H. C. H. Carpenter and Mr. C. A. Edwards, of the National Physical Laboratory, with the co-operation of the Broughton Copper Company and the British Aluminium Company, by whom supplies of the best commercial copper and aluminium were furnished, the rolling and drawing of the materials were undertaken, and special castings were made when necessary. More than 1,000 tests have been conducted, in addition to some 200 microphotographic examinations, from which 112 photographs are reproduced as illustrations to the report. All the results are carefully and clearly classified, but the research is one of so complex a character that we cannot possibly deal with it in a few words. We may point out, however, that practically all the properties of aluminium copper alloys have now been thoroughly elucidated, with the solitary exception of hydraulic tests of castings. This omission is due to the fact that the results obtained were unsatisfactory because the castings adopted were not thick enough to permit sufficient machining to give smooth round surfaces. Still, in general terms it may be said that the report fairly disposes of the binary alloys, and that the influence of a third metal may next be made the subject of investigation.



Old Houses, Mary-le-port-street, Bristol. From a Sketch by Mr. A. C. Conrade.

Old Bristol.

At the meeting of the Bristol and Gloucestershire Archæological Society at Bristol last week, Mr. John E. Pritchard read a paper under the title "Bristol Archæological Notes for 1906," in the course of which he deplored the destruction of various examples of old Bristol street architecture, and the probably impending destruction of others, and suggested that they ought to have an architectural Museum Court in which, when it had become absolutely necessary to destroy old houses of an architectural interest or character, parts at least of their fronts might be preserved and set up, as memorials of old Bristol. If this suggestion could be carried out, there would be found a great deal in the details of old Bristol house fronts, as well as some interior details, which would be well worth preserving in this manner, even if it were found difficult to preserve or set up again whole frontages. In connexion with the subject, we give on this and last page sketches of two old Bristol houses, which were made by Mr. A. C. Conrade two or three years ago. Whether these still stand, or whether they have since succumbed to street improvements, we have not heard. We have some other Bristol sketches of the same class which we may be able to find space for on another occasion.

The Design of Pianofortes.

At the Society of Arts on Tuesday, Mr. W. Dale read an interesting paper to a sadly too small audience, on "The Artistic treatment of the exterior of the Pianoforte"; Mr. T. G. Jackson, himself the designer of a well-known decorative piano, in the chair. The paper was to a considerable extent historical, and traced the development of the modern form of the piano from the earlier forms of the spinet and harpsichord to the grand piano of the present day. The lecturer described at some length the characteristics of the instruments made by the celebrated Rückers family, of Antwerp, in the XVIth and XVIIth centuries. He did not lose sight of the fact that the piano is in the first place a musical instrument, and that any decorative treatment it receives must be subordinate to this its primary purpose. Some of the examples of highly decorated pianos of which photographs were shown, however, did not entirely bear this out. The instrument, for instance, made by the old Broadwood firm a century ago for that undesirable Spanish political scoundrel Godoy, and designed by Sheraton, was decorated with medallions of Wedgwood ware, a bad material to introduce in a piano-case, which should be entirely of wood which will reinforce the musical sound; and indeed we think the design of this piano, even from the merely artistic point of view, was a good deal over-rated. Among the two or three remarkable modern piano designs illustrated, we prefer that of Mr. Jackson to any other, on account of the fine and architectonic treatment of the supports. But, though it is very interesting, on occasion, to see what amount of rich and elaborate design may be applied to a piano-case, we are against this very elaborate treatment as a rule, as it seems to make the instrument rather a show

for the eye, and diverts attention from its primary purpose as a musical instrument. A Stradivarius violin, with its fine lines and slight and severely treated ornament, is more truly a work of art than the elaborately ornamented but musically inefficient stringed instruments of an earlier period. It is the same kind of art that we want in the piano-case; suitability of form and fine and delicate finish in mouldings, rather than elaboration of ornament. A good deal was said as to the inconvenient shape of the modern grand piano; but it is the shape which expresses the construction, and is therefore right. The chairman suggested the possibility of constructing it in upright shape, after the fashion of some of the older and less ponderous instruments; and Mr. Rose, of the firm of Broadwood, who was present, said there would be no practical difficulty in doing that. Such a piano, however, would be a rather difficult and perilous machine to move about in a room (which is often necessary), and it would be very much in the way when set up in front of an orchestra for a concerto. On the whole, we think artists and manufacturers had better accept the usual form and endeavour to treat it with refinement of detail. Mr. Rose declared that one difficulty in the way of improving the design of the case was that the ordinary purchaser would not have it; which is probably true. The ordinary purchaser wants a piano like every one else's piano, and thinks there is something wrong about it if it is not. That seems to be the most serious obstacle in the way of improvement of style.

International Art Gallery.

AT the small gallery under this title (14, King William-street, Strand) is a very interesting collection of water-colours by English and foreign artists; the latter mostly Dutch, though there are a few French drawings by MM. Cheret, Lucien Monod, and others. Among the English artists exhibiting are Mr. East, Mr. Reginald Barratt, Mr. Fulleylove, etc. Among the Dutch works are some fine landscapes bearing names not very familiar to us: we may mention especially "Carting Gravel," by H. Van der Weele; "Windmills," by W. Roelefs; "Landscape with Windmill," by V. Bauffe. The collection includes more than 170 water-colours and drawings, many of them of high artistic character.

Photographic Exhibition.

AT the rooms of the New English Art Club is a collection of photographs by seven photographers who aim at treating photography as an art. The productions of each are grouped together, and many represent very clever and more or less successful efforts to give an artistic quality to photographs by means of effective composition, and by the selection of subjects which are especially suited for photographic treatment. Thus, Mr. Coburn's "Spider Webs, Liverpool," is a photograph in which the masts and rigging of ships in a dock are reflected in slightly rippled water, and is very successful; but his other ship photograph, "The Rudder," the stern of a ship filling up nearly the whole picture, only serves to suggest what a far more powerful thing an etcher might have made of it. Mr. Craig Allan has seized on a very picturesque moment in "A Fish Auction—Holland," with a flat beach and a group of people in the middle distance; and his full-length portrait of a lady, with the head relieved against a small square window opening behind it, has been very well considered in the pose of the figure and the composition of the whole, and is something quite different from the ordinary portrait photograph. Of course we find a good many examples of portraits and other subjects which are supposed to gain artistic quality by a blurred definition, like a face seen through a mist, or like one of the late M. Carrière's pictures; but we can hardly consider this as art so much as what may be called ingenuity; and the same remark applies to M. de Meyer's various still-life studies of flowers, glass, etc., in which he has produced a kind of shimmering effect which is pretty in its way, and must have required much clever handling to produce. But all this is not art in the sense in which artists understand the word, and no argument will make it so. In a short preface to the catalogue Mr. Bernard Shaw, who seems to think himself qualified to dogmatise on every form of art without apparently even understanding what art means, informs us that he predicted twenty years ago that most of what was done by brush and pencil would soon be better done by the camera; what he means by "better done," and in what sense, he does not and probably could not explain. But if the promoters of the exhibition think they will do themselves any good by prefixing this kind of conceited nonsense to their catalogue they are very much mistaken.

THE BRITISH SCHOOL AT ROME.

THE first open meeting of the British School at Rome for the present season was held in Rome on January 29. It was well attended by foreign scholars and by British residents and visitors. The Director (Dr. Thomas Ashby) read the first paper, dealing with ancient remains near Le Crocicchie, on the Via Clodia, about sixteen miles to the north-west of Rome. He first described the ruins of a Roman villa, about one and three-quarter miles to the north-north-east, and about one and a half miles south of the village of Anguillara, on the Lake of Bracciano; they had been described and carefully planned by Ligorio in the XVIth century, and the information which he gives is important, and, in the main, trustworthy, while his drawings are good. The most prominent building by far is a large edifice in concrete, faced with brick, about 50 ft. square, and about the same in height, divided into three stories. The brickwork of the exterior is remarkably fine, the mortar joints being thin and the bricks well laid; they are light yellow, except those of the flat pilasters, with which the wall is decorated, which are red. The lowest story has Corinthian, and the middle story Doric, pilasters, while the upper story is said by Ligorio to have had Corinthian pilasters, though too little now remains for certainty to be possible. The capitals and mouldings are all cut out of the brickwork. The down pipes for the drainage of the roof are still well preserved. On the south side, and not included in the measurement given, is a staircase, which formed the means of communication with the two upper floors.

The interior had three niches on each side in each story, the central ones on the north and south in the lowest floor being occupied by doors, and all the rest by windows, except on the south side, towards the staircase, where there were niches only in the lower floor, and arched passage-ways from the landings in the two upper floors (except for the eastern niche, which, in the middle floor, was closed, and in the upper floor contained only a small window looking on to the staircase).

The lowest floor was roofed by quadripartite vaulting, supported by the pilasters between the niches and by four pillars in the middle, which have now disappeared, but are shown by Ligorio. The middle floor was similarly treated, but croos-walls between the pillars seem to have divided it into eight small rooms, with an open space in the centre. Of the internal arrangements of the upper floor even Ligorio has no drawing; they would probably have been similar to those of the central floor.

The building is a remarkable one, and comparatively well preserved. The rest of the buildings of the villa seem to belong to a later date, and have been modified and added to in the Midde Ages, when the Church of S. Stefano—from which the place now takes its name—was built into them.

Dr. Ashby then dealt with a group of caves about four miles to the south of Le Crocicchie. A valley running north and south is first reached; it seems to have been widened by quarrying, and has now a flat floor, the stream which flows through it having been carried through a channel faced with *opus reticulatum* in Roman times for a distance of nearly 100 yds. It soon debouches into another running from west to east. At the point where it does so, there is on the right a group of large caves, originally, perhaps, quarries, which seem subsequently to have served as habitations, and on the left a series of tombs of the Roman period hewn in the tufa rock. The most important of these, now known as the Grotta della Regina (probably from a bust which seems to have once existed over the entrance), has various architectural details cut out of the natural rock, the engaged columns at the entrance, those on each side of the inner door, and two columns standing free, and carrying a semicircular architrave (the columns are gone, but the capitals still remain) in the interior. Another has stucco decorations on the roof, now entirely blackened by the smoke of fires; and another has a small pediment hewn out in the rock, the columns being expressed in brightly-painted plaster. This group of caves seems to be almost unknown, and not to be described in any similar work on the subject. There are others in the neighbourhood, which is somewhat remote, and merits careful exploration and study.

Both parts of the paper were illustrated by lantern slides from photographs taken on the spot.

The Assistant-Director (Mr. A. M. Daniel, M.A.) then briefly described the arrangements made with regard to the catalogue of the Museo Capitolino, and stated that, among others, Professor Percy Gardner, Mr. H. Stuart-Jones (late Director of the School), and Mr. A. J. B. Wace (Fellow of Pembroke College, Cambridge) were undertaking important sections. It is intended that the catalogue shall contain photographic reproductions of almost all the pieces of sculpture in the museum.

Subsequently, he made a few remarks on a colossal head in the museum (so-called "Giunone"), and discussed its relation to the sculptures from Lykosoura in Athens, to the artist of which, Damophon of Messene, the Capitoline head has been attributed. He expressed the opinion that the Capitoline head, if, as is generally accepted, it is an original, cannot be the work of Damophon, showing photographs both of this head and of two heads from Lykosoura in support of his contention.

A COATING FOR WALLS.—To impart to walls an appearance resembling that of natural stone, the walls may be coated with the material sold by the Coatostone Decoration Company, under the name of "Coatostone" or "Liquid Stone." A sample of asbestos board coated with "Coatostone" has been forwarded for our inspection, and the adhesion of the "Coatostone" to the asbestos board appears to be perfect. The surface of the "Coatostone" seems to be little affected by attrition or by water.

LETTER FROM PARIS.

DURING the last few weeks the metropolitan railway system of Paris counts a new line, parting from the Rue de Lancry, near the Place de la Republique, to end at the Place d'Italie. It crosses the Seine on a viaduct which passes above the Gare d'Orléans, and skirts the Boulevard de l'Hôpital. This line will be prolonged to the Gare du Nord, and will also connect with the Gare de Strasbourg; this addition it is expected will be open in October. The line No. 6, between the Place d'Italie and the Place de la Nation, is completed, but this also cannot be put into operation before October. The line No. 8, from the Opéra to Auteuil, is not yet commenced; but it is hoped that by the end of 1908 or the beginning of 1909 this will be finished, and the scheme of the metropolitan lines will then be complete.

The removal of the Luxembourg Museum to the buildings of the Seminaire de Saint Sulpice is now supposed to be determined on. These buildings date from the XVIIth century. They occupy a pretty large square comprised between the Place Saint Sulpice and the Rues Bonaparte, Vaugirard, and Feriou. A covered porch in the façade leads into a rectangular court surrounded by a cloister with massive columns; this it is proposed to cover in and make it the sculpture museum. The administrative offices, and the departments of architecture, engravings, and drawings, will be arranged on the ground floor on the four sides of the square, and on the upper floor will be the picture galleries, which will furnish twice the space of those in the present museum. Every precaution is to be taken against danger from fire. The ateliers and workshops, as well as a public refreshment-room, will be provided for in buildings exterior to and cut off from the actual museum. The cost of the alterations, which will be carried out under the direction of M. Dernaz, the new architect to the Senate, will amount to about 620,000 francs, and it is expected that the work can be finished in a year.

The Société des Amis du Louvre has presented to that museum two statues from the ancient Abbey of Maubuissen, representing Charles VI. and his Queen, Jeanne d'Evreux. They are attributed to Jean de Lièges, and are works of considerable historic interest. They will be exhibited in the mediæval gallery at the Louvre, where is also shortly to be placed the collection given by M. Moreau Nelaton. This donation comprises eleven pictures by Delacroix, of which the most important is the celebrated "Barque de Don Juan." The collection includes also works by Corot, Decamp, Fantin-Latour, and Manet.

The paintings by Baudry on the ceiling of the grand foyer at the Opéra, which constitute his most important work, and symbolise the progress of all the arts from ancient times to the present day, have never been properly seen owing to deficiency of lighting. The Minister of Fine Arts has required the new management of the Opéra to undertake a system of electric lighting to display these paintings, which have hitherto been more talked about than actually seen and appreciated.

The Musée des Arts Décoratifs is to open, in a few days, a curious exhibition of Oriental textiles—robes, linen, State dresses, etc., worn in Persia, Turkey, and Hindostan during the XVth, XVIth, and XVIIth centuries.

An exhibition of the works of the late painter, Carrière, and of the sculptor Crauk, is announced to be held this year at the Ecole des Beaux-Arts.

The death is announced of the painter Albert Cordier, at the age of thirty-five. He exhibited, at the Salon des Artistes Independants, some remarkable works of the ultra-modern impressionist school.

A painter of more solid reputation, Felix Barrias, has just died, at the age of eighty-four. He was the brother of the eminent sculptor Ernest Barrias, who died two years ago. Barrias was a pupil of Léon Cogniet, and obtained the Prix de Rome in 1844. He received medals at several salons, and became Officier of the Legion of Honour in 1898. He was a painter of great facility of production, and left a great many works, examples of which are to be found in various art-museums in France, especially at the Luxembourg, and at Nantes, Autun, Laval, Tarbes, and Versailles; the latter museum contains his painting of the embarcation of the French troops for the Crimea. There are decorative pictures by him in the churches of St. Eustache, La Trinité, and Notre Dame de Clignancourt; and he also painted three cupolas in the Hôtel de Ville. Barrias had numerous pupils known to fame, among them M. Bellecourt and M. Roll. He is much regretted not only for his talent but for his personal qualities and his kindness to younger artists, of whom he was always the friend.

M. Bonnier, the principal architect of the Palais des Beaux-Arts, has been appointed Architecte-Voyer *en chef* to the Municipality of Paris, in succession to M. Vigneulle, who has retired.

BARNSLEY HIGH SCHOOL FOR GIRLS COMPETITION.

THE Governors of the Barnsley High School for Girls recently invited architects with experience in the erection of secondary schools to submit designs for a new school to be erected in Huddersfield-road, Barnsley. Out of a large number of applications some forty-nine firms were selected to compete, and the resulting designs were on view last week. Owing to the fact that almost every town of any importance throughout the country has under consideration the erection of a secondary school, and that no standard plan for this comparatively new type of school has yet been evolved, exceptional interest was taken in this competition by the profession, the rooms in which the designs were exhibited being crowded each day.

According to the conditions accommodation was to be provided, at a cost not exceeding 35*l.* per head, for 450 girls, comprising 400 seniors, with transition and kindergarten departments for twenty-five each. Provision had to be made for an assembly-hall, sixteen classrooms, gymnasium with dressing-room, dining-room to accommodate from 150 to 200, and suitable for use as a common-room, two laboratories, art-room, cookery-room, head and assistant teachers' rooms, music-rooms, library, caretaker's house, and school kitchen in basement, etc. An unusual feature was a small retiring or sick room.

Unfortunately, the clauses in the conditions relating to the assembly-hall were not very clearly worded, leaving it doubtful whether the promoters desired a plan of the corridor type, with separate assembly-hall, or one on the usual lines with the classrooms entered from the hall. Owing to this, many of the competitors submitted two schemes, one of each type, so that, although the number of competitors selected was only forty-nine, there were some sixty designs sent in.

The site is an open one, with a fall from east to west. Many of the competitors placed their building facing Hall Bank-lane, which is only a narrow by-road, and not likely to be opened out for many years. The position adopted by the author of the design placed first, who put the school across the corner of the site and parallel with Huddersfield-road, is undoubtedly the right one, from the point of view both of appearance and of the aspect of the building. Too many of the competitors have followed the arrangements adopted by the winner of the recent Liverpool Girls' Secondary School competition, forgetting that that plan owed its success to its adaptability to special conditions which did not apply in this instance.

It is a pity that the conditions were not more clearly worded, as each architect appears to have interpreted them in a different way, with the result that the award satisfied no one, with the exception, doubtless, of the winner. An organised protest is under consideration, but the Governors, having given full power to the assessor (Mr. E. R. Robson), will no doubt carry out his award, which is as follows:—

1st Premium (100*l.*), Messrs. Buckland & Haywood-Farmer, Birmingham.

2nd Premium (50*l.*), Mr. Arthur M. McKewan, Birmingham.

3rd Premium (20*l.*), Messrs. Russell & Cooper, London.

The design placed first probably owes its position chiefly to two points: First, the fact that all the classrooms are on the same floor as the assembly-hall; and, secondly, to the way in which it adapts itself to the fall in the site, with a consequent economy in cubic contents. It is questionable, however, whether it is not an advantage to have some of the classrooms adjoining the laboratories and art-room; the lecture-room should most certainly be so placed. The assessor in his report gives very few reasons for his choice of this design beyond the smallness of its cubic contents; but it hardly seems fair to award the first premium on this ground, and, at the same time, to mention a number of points at which the building will need to be considerably enlarged. Perhaps the most notable of these instances is the main corridor on both floors, which is only 7 ft. wide and over 200 ft. in length. This, he says, "ought, co-extensively with the hall, to be widened to 10 ft. by moving out bodily the front part of the building," an alteration which will make a very considerable addition to the cube.

The plan as a whole is simple and well balanced, but will need numerous alterations before it can pass the Board of Education. No attempt has been made to disconnect the sanitary arrangements and cloak-rooms from the remainder of the school, this being distinctly a retrograde step as compared with recent secondary schools. The staircases appear to be absolutely without direct external lighting, though this can be remedied by removing the lavatories from the landings on each floor. The cycle-room, which is much too far from the entrances, is lit only by a borrowed light from a distance of 43 ft. The small windows shown in the external wall are practically useless, as a reference to the upper ground floor plan shows that they are under the long flight of steps leading to the main entrance. The position of the sick-room, which faces the north, and is between the teachers' water-closets and the cookery-room, is hardly an ideal one. The music-rooms might with advantage be separated from one another. On the upper ground or main floor the same remarks as to corridors and staircases apply. The offices, again, are badly placed, especially those over the kindergarten-room. The elevations are uninteresting, and a number of features are omitted on them which are shown on the plans, notably several chimneys and the conservatory. The assessor estimates the cost of the building (512,656 cubic ft. at 6½d. per foot, plus 500*l.* for laying out of grounds, etc.) at 14,368*l.* 3s. 8d., the architects' estimate being 14,732*l.*, and there is little doubt that the scheme as it stands could be carried out for that sum, though the necessary alterations will considerably increase it.

The design placed second, by Mr. A. McKewan, is in many respects superior to the first design, particularly in the lighting of the corridors and staircases and in the isolation of the sanitary arrangements. The plan is an ingenious one, though rather marred by the awkward shape of the assembly-hall. The elevations are simple, and the whole scheme is well worked out, and the drawings nicely finished. The cubic contents are 557,000 ft., the assessor's estimate of the cost being 15,535*l.*, and the architect's 14,725*l.*

The design placed third, by Messrs. Russell & Cooper, has many advantages over the first premiated one. The corridors and staircases are well lighted and ventilated, and the cloak-rooms and conveniences are thoroughly disconnected and at the same time easily accessible. A strong feature of this design is the perfect lighting of each room, and it is somewhat hard to see why this design should not have been placed first. The elevations were quite the best in the room, and were shown to advantage by a very fine set of drawings. The assessor's estimate for this design was 16,027*l.*, and the architects' 14,683*l.*, the cubic contents being 573,320 ft.

BUSINESS PREMISES, HULL.—New premises have been erected in Paragon-square for Messrs. E. P. Dixon & Sons, Ltd. The buildings have an Ancaster stone frontage and granite and teak pillars. The shop fittings have been carried out by Messrs. Sage. Messrs. Gelder & Kitchen are the architects, Mr. G. H. Panton the contractor, whilst the heating was carried out by Messrs. Musgrave & Co., of Belfast, and the electric light installation by Mr. Alfred Shaw.

ST. MARY ARCHES CHURCH, EXETER.

ST MARY ARCHES, or de Arcubus, is a XIIth century church in the ancient city of Exeter, and situated in a quaint, narrow street bearing the same name. At one time this street and parish contained some of the best private residences in the city, as we can gather from the numerous records left on memorials to late mayors and sheriffs of the city, which have been erected in this interesting old parish church. In this street we have a typical specimen of a main street of the Elizabethan period, probably little altered as to width, but having no longer the heavy, projecting gables overhanging, so that opposite neighbours could shake hands from their windows. The church is one of the oldest in the city of Exeter, being second on the list. Its earliest written record is in 1199, when it was mentioned as one out of a total of twenty-eight other churches, to which Peter de Palerma left a sum of money. Speaking from an architectural point of view, I should say it dates probably from the early part of the XIIth century, during the time of Henry I., as the detail of the caps to the nave piers have the scolloped enrichment so common in that period, so called from its resemblance to the scollop shell. This form of cap was commonly used from 1100 to 1135, and there is a *fac-simile* at Stourbridge, Cambridge, dated *c.* 1120, only it has a quirk in the centre of the abacus instead of between the abacus and cavetto. There is also one similar at Stanley St. Leonard, Gloucester, dated *c.* 1130. Judging by these two examples I should think it is likely to be contemporary with them—say from 1120-1130, or thereabouts. The Norman portion is the nave, with massive circular columns with no bases and square caps, slightly ornamented. These are three in number, and with the two responds at either end support four circular-headed arches forming a beautiful arcade on the north and south sides of the nave. This is the only church in Exeter with regular aisles, which adds to its appearance and interest, and it contains some fine monuments of XVIIth century work, and also a very fine altar tomb of XVIth century work. There is no doubt about it being an historic church, although little known, because, in 1222, mention is made that "The parish churches within this city (Exon) and suburbs thereof were this year first limited and brought up to the number of nineteen, and are in the several donations of (1) St. Johns, in the King; (2) St. Edmonds, in the Mayor, Bayliffs, and Commonalty of this city; (3) St. Stephens; (4) St. Mary Arches, in the Lord Bishop of the Diocese," and so on up to nineteen.

It had evidently been dedicated some time previous to this on the eve of Trinity Sunday, because in 1232 Bishop William Brewer granted an indulgence of twenty-four days to all true penitents who, from a motive of piety, should assist at its anniversary. The term "de Arcubus" was its distinguishing title, so as not to confuse it with other churches of the same saint; but probably this was the only church dedicated to the Virgin that had aisles.

The term "Arches" is a very ancient one, as in the taxation of churches by Pope Nicholas IV. (1288-1291), it is designated as "Capella Beate Marie de Arcubus," but no endowment is mentioned.

At the head of the north aisle formerly stood the chantry of the Holy Trinity, but the position is now occupied by the organ, and in another chantry on the south side stood the altars of SS. Andrew and Thomas. This chantry was founded by Thomas Andrew, a bailiff of the city, in 1494, and who filled the mayoralty chair for two years in 1505 and 1510, and died, as his monument at the head of the south aisle records, on March 9, 1518. From the chantry rolls we learn that the yearly value of its lands and possessions amounted to 19*l.* 4s. 3d., out of which the annual stipend of its priest was 5*l.* 6s. 8d.; and that twelve poor men yearly were to be provided with "12 gownes of fryze, 12 pair of hosen, 12 pair of shoes, and 12 pair of woolen socks."

The founder's monument, which, until 1814, was concealed from view by woodwork, is an altar tomb of XVIth century work, with a recumbent effigy of himself, supposed by some to be in his mayoral robes with his hands raised in prayer, his hair is curled and rests on a pillow and falls over the shoulders. At his feet is a dog, the emblem of fidelity. Above the figure is a canopy, and over the arch on the exterior the arms of the Andrews appear on two shields, viz., two staves or crosses saltierwise, and a reaping hook interposed. On the cornice is a ribbon with the inscription: "Hic jacet Magister Thomas Andrew, maior civitatis Exoniae qui obiit Ano. Dni. MCCCCCXVIII., et nono die Marcii Cujus animae propitietur Deus. Amen." In the three niches of the eastern pilaster, St. Barbara is introduced, with her tower; in the western, St. Mary Magdelene occurs as often with the alabastrum. In front are four shields supported by angels. Two of them contain the armorial bearings of the Andrews, the other two bear the arms of the Hamburg merchants.

Near the chapel of S. Andrew was another chantry, founded by Agnes Frost, in which prayers were to be said to celebrate "Jesus Masse" every Friday.

A document relating to an inventory of goods in St. Mary Arches illustrates the fate of the ornaments of churches and ministers in the reigns of Henry VIII. (1509-1547) and Edward VI. (1547-1553). In the convents, "Bale" says that the library books were reserved to serve the jakes, scour the candlesticks, and rub the boots of those who bought them; and "Heylin" assures us that vestments were made into bed-coverlets and chamber hangings, and chalices were often converted into drinking cups after the fashion of Belshazzar.

By the commission of the 7th Edward VI., cathedral, collegiate, and large parish churches were permitted to retain only one or more chalices, and smaller churches and chapels but one chalice, a portion of the linen furniture, the great and sanctus bells, and a few necessaries were also left. The residue of "the linen, ornaments, and implements of the church" were wholly made away with; cope, vestments, altar cloths, and ornaments, and ornaments of silk with cut gold, satin of Bruges, dornix, worsted, and saye, as well as all the articles of metal were sold, and, like the ready money, plate, and jewels, confiscated to the King's use.

The same course was taken with regard to those foundations which had escaped the hands of the King's predecessor, to the impoverishment of the clergy, the loss of parishes, and the destruction of vessels of the sanctuary. The chantry priests had acted as schoolmasters in many places, and foundation schools were erected in some towns, but the services as assistant curates in the cure and choir were not supplied (when their duty of saying private masses for the dead ceased with the denial of purgatory).

An age of ignorance and irreverence succeeded, many of the most sacred ornaments being converted to secular and vile uses, and the parish clergy left single-handed and poor, so that Puritanism, culminating into red-handed rebellion within a century, already made havoc of the church. Meanwhile, vestries were broken into and robbed, and a commission was issued to inquire who had embezzled or alienated the property appropriated to the Crown. It is singular that no vestments were left at Exeter, as at Canterbury, and in Essex, Lincolnshire, Surrey, and Dorsetshire a chalice, cope, vestment, and surplice were allowed for the church use. To this period the following document refers:

"St. Mary Arches. Bells, 1 v.c., 2 iiic., 3 xxli., i old grene vestment with i albe, a goodlye faire banner embrodred with gold, iii copes of crymzyn velvet with a sute of vestments to the same and thappurtenaunts thereunto belonging, i cope of clothe of tyssue with a sute of vestments to the same with thappurtenaunts thereunto belonging, a litill paire of candelsticks of laten, i vestment of redd sattyn with thalbe, i vestment of grene sylke with thalbe, i vestment of black chamblett, i old sute of dornyx without thalbez, a sepulcra cloth of bridys sattyn, iii fronts of bridges sattyn, i old front of chamblett, iiii towels, i of diaper and ii playne, i vestment of redd silke saye, a paire of organes, v littill cotez of velvett, iii lynen courteynes, i vestment of tawnye sattyn with the albe, i vestment of grene sattyn with the albe. Plate, a chaleys gilt weyng xv unces. and di, an oyll box parcell gilt xxi unces. and di, Summa xxxviii unces. Lefte, ii chalys weying xxix unces., v table clothes, iii founte clothes, i old pall of silke, i carpett of bridges satten for the communyon table."

"Inventorie of the bells in the Parish Church of S. Mary Arches in the Cittie and Countie of Exeter, made upon the viewe and survey, 6th yeare of Edw. VI. Item iij greate belles and one sacringe bell which now remayneth yn the tower."

The parish register of this church dates from the year 1538, and is in excellent preservation.

In 1546 one John Mainard, who by his will dated 4th December, "orders his body to be buried in the chapel of the Holy Trinity, within the church of St. Mary Arches, in the city of Exeter," and gave lands for a yearly obit to be kept in the said church on the 3rd of November (if not a Sunday), to pray for the soul of John Bradmore, his father-in-law, his father's and mother's souls, and all the souls he is bound to pray for. He leaves a legacy to his brother; and wills that all his evidences, concerning his lands, be sorted by his executors and put in boxes, and then put in a coffer and three locks and three several keys; one to remain with the Mayor of Exeter for the time being, another with the overseers of his will, and the third to be kept by the head warden for the time being of the parish of St. Mary Arches; "and the said coffer to remain in the council-chamber till such time as his son and heir came to the full age of twenty-eight years."

The next link in the church's history brings us to 1573, the date inscribed on the chalice, which is silver-gilt and finely chased, and finished with a cover, and decorated with the Tudor rose. The inscription on it is "Saynte Mary Arches Church, 1573" and the old Exeter mark, "IONS," the trade mark of an Exeter goldsmith, Ion Ions, or "John Jones," a common name on Devonshire church plate. There is also a pewter flagon dated 1628, now used for filling the font.

In 1656 an Act, or, rather, an Ordinance, of Parliament was passed "for the promotinge and more frequent preachinge of the Gospell and mainteynance of ministers in the cittie of Exeter, and unitinge of parishes and parish churches within the said cittie of Exeter." The Cathedral was divided into two places of worship, East Peter's and West Peter's, at the instigation of Lewis Stukeley, the Independent minister and chaplain to Cromwell, and the service of Directory was to be performed in but four other parish churches, viz., St. Mary Major's, St. Petrock's, St. Mary Arches, and St. Edmund's on the Bridge, the remaining thirteen being condemned as useless, and announced for sale by the public crier; yet, in the true levelling spirit of the Independents, the towers of the churches were to be taken down "clean to the roof by the purchasers, and to be converted either into schools or burying places." The same day several presentations were sealed with the common seal. One of these was a presentation to Ferdinando Nicholls (the celebrated Puritan preacher), who was the rector of this parish church, on November 12, 1634, took the Covenant in 1648, grew into high favour with the Parliamentary faction, and secured the Bodlean Lectureship; but was turned adrift by the Bartholomew Act. In 1641 he gets the credit of having deprived the church of its stained-glass, as there is evidence that money was collected "for ye new glazing of ye church windows in Mary Arches parish, where ye olde painted glass had been taken down by a late order from ye House of Commons in Parliament." A rather amusing story is told of Nicholls, who was ejected from the living. In the midst of his sermon one day he discovered that several aldermen in the congregation had fallen asleep. He paused in his discourse and sat down. The people then began to stand up and move about, and this had the effect of awakening the slumberers, who stood up with the rest, to ascertain the cause of Mr. Nicholls's silence. Upon this that gentleman arose, and addressed the drowsy aldermen as follows: "The sermon is not yet done, and, now you are awake, I hope you will hearken more diligently." What happened after this is not told, but I suppose it had the desired effect, and the service proceeded. It had often been said that Mr. Nicholls had more

than once expressed a wish to die in harness and in sight of his congregation. This actually came to pass in the presence of the people as he was joining heartily in the singing of a psalm, when he dropped down and expired. There seems to have been some feeling displayed at his being buried in the parish church, as the following account shows: At his funeral in the church in April, 1663, a great riot ensued; we find that "a dozen men were bound over, April 13, 1663, for disturbance of the public peace and committing a rout in the parish church of St. Marie Arches at the interment of the corpse of Mr. Ferdinando Nicholls, late minister of that parish, without a minister to do his office, carrying away the lights and making such a noise by *hemming*, etc., as hath not been heard; and divers of the persons then present laying violent hands on the grave-maker and others."

Having reached the monumental stage in the church's history, let us enter and examine it, by the way of the west entrance under the tower. This is of later date, and is oblong on plan, and rests on two Norman abutments, and possibly the west door was inserted in the old Norman tower. In Braun and Hogenbegh's "Civitates Orbis Terrarum," it is shown capped with a lofty spire, but that no longer exists. That this church underwent some alteration in 1657 appears more than probable, as we find it recorded that "after 800*l.* had been received out of the amount arising from the sale of useless churches within this city," the next 100*l.* should be appropriated towards the enlargement of Mary Arches Church.

There are three bells, tenor, 6 cwt., two of which are of mediæval date.

On entering, the first object that arrests our attention is a modern Norman font, with a conical fluted-oak cover, on the under side of which is carved a dove. This cover is raised by a rather clever contrivance made out of the old regalia stand used by the mayor for the maces and state sword when he used to attend in state, this being regarded as the municipal church at that period. Taking the north aisle, the first monument of importance is to Thomas Walker, who was mayor in 1601, 1614, and 1625, and died in 1628. This monument has effigies of himself and wife kneeling at a draped double "Prie Dieu" with their hands raised in prayer. This is surrounded by Ionic columns supporting an alabaster entablature with a shaped pediment crowning it. In the centre is the Walker crest with helmet trappings and a "Greyhound sejant," at the bottom of the pediment are two winged cupids with their arms resting on skulls. Under the kneeling figures, a skull and an hour-glass, and under the slab which supports the "Prie Dieu" is some ornamental strap scroll-work, also in alabaster. The rest of the monument and columns is in black marble with white veinings. Leaving this we now come to that erected to Christopher Lethbridge, who was sheriff in 1655, mayor in 1660, and died in 1670, and who, by his last "will and testament, dated November 17," 21 Caroli Secundi, Anno Domini 1669, founded an almshouse within the south gate of the said city and parish of the Holy Trinity, for six poor people, allotting them yearly the sum of 15*l.* 12s., as the following extract shows: "To the poor of the parish of St. Mary Arches, I give an annuity of 3*l.* 8s. to be paid quarterly, for 3,000 years, issuing out of my dwelling-house within the said parish; that the same be bestowed in middle sort of bread, by equal portions every Lord's Day, by the churchwardens, to fourteen poor people there inhabiting as they shall think have most need; and, if the said wardens think fit, so many may have it on the Lord's Day, and so many others the next Lord's Day, but that the said bread be given to none but those that go to the church, and stay there every Lord's Day during divine service and sermon (if any be), unless such as cannot come by reason of infirmity; the same to commence immediately after my death. And as I have lately erected almshouses in the parish of the Holy Trinity, containing six dwellings, I will that 15*l.* 12s. of the profits of the premises devised to the mayor and council as aforesaid yearly be paid towards the maintenance of six poor people in the said almshouses, equally divided between them monthly, one of which poor people shall be of the parish of St. Mary Arches aforesaid, and all of them to be placed there by the said mayor and common council.

I give to the poor of Exeter which have relief 40*l.*, to be proportioned to each parish according to their poor by my executors, and distributed at or soon after my funeral by the overseers of the respective parishes.

I give to 100 tradesmen of the city and county of Exeter, that have a wife and child or children, 100*l.*, equally to be divided between them, and paid within one year after my decease, and my will is, that six or eight of the said poor men be of the parish of St. Mary Arches to be nominated by the said mayor and common council."

During his mayoralty in 1660 the city presented the King with 700*l.* in plate to welcome his return home; and to his sister, the Princess Henrietta Maria (born at Bedford House, in Exeter), 200*l.* more in plate.

This monument has an oval panel in the centre, surrounded by ornamental work between Corinthian columns, which support a painted stone entablature, with portions gilded. The coat of arms appears at the top, and under the slab, and on the corbels supporting it are cherubs' heads. This is also of black marble with a white vein in it.

We now come to the altar, behind which is a reredos, a nice piece of Jacobean work in oak, dated 1696, with a good twisted balustrade and altar rail dividing the sanctuary from the choir.

In front of this in the floor of the choir is a very fine memorial stone to Alicia Blackaller, daughter of Thomas Andrew, the founder of the chantry of the Holy Trinity. This formerly stood in the yard in front of the south entrance, but was recently removed and placed here, as it contains some of the finest lettering in existence, according to some antiquaries, and bears the date 1532.

The floor of the sanctuary has been recently relaid with blocks of Sicilian and East Ogwell marble.

Leaving the choir we enter the south aisle, at the head of which is Thomas Walker's monument, which has a square panel in the centre, with Corinthian columns supporting an entablature surrounding it, and crowned by a circular pediment. The Walker crest appearing above in this case. Under the slab supporting it is a skull and crossed bones. This is also of black marble with a white vein in it, and stone, painted and gilded.

The name of Walker is very common in this church, as the next monument is to one, Robert Walker, similar to the last, only it has a cherub in the centre of the frieze, and underneath the slab carrying it a skull on two wings, with the hour-glass beneath.

Our next is rather a large one, to Richard Crossing, of black marble with white veining and stone painted and gilded, with Corinthian columns and entablature, with a heavy pediment. In the centre are four cherubs' heads surrounding an oval panel. Richard Crossing was sheriff in 1647, elected Mayor of Exeter in 1649, and refused to act, and gained notoriety on that account, but took office in 1654, and died in 1676.

The monument to Nicholas Brooking is a very fine specimen, with the original colouring in a good state of preservation. This has Corinthian columns supporting an entablature, with a shaped pediment and his crest in the centre, and on the slope winged cupids resting on a skull, and an hour-glass. Underneath the supporting slab the skull and crossed bones occur again. Nicholas Brooking was mayor in 1655, and sheriff in 1648, and was looked upon as a sort of hero, as he was one of a few who remained in the city during the time of the plague. He died, as his monument records, in 1666. We now come to John Davye's monument, which is another very fine one, and contains rather a quaint inscription. He was three times Mayor of Exeter, and by his deed indented, bearing date February 10, 42 Elizabeth, Anno Domini 1600, founded an almshouse within the parish of St. Mary Arches for the relief of two poor men and their wives, and two single persons, men or women, and settled the sum of 16*l.* per annum for their maintenance, that is to say, to the married men and their wives fourteen pence a-piece and to the single men or women eighteen pence apiece to each of them. The inscription on his monument is as follows:—

"This marble monument, this fading brass
Might have been spared, for neither needful was
To stand a register to Davie's name;
Who living did erect a fairer frame,
And was far more lasting; whose foundation
Was firmly grounded on the corner stone;
Whose bar was faith, whose pillars piety;
And whose engravings, works of charity.
Then let the dead, trust to a dying tomb;
But how can Death in Davie find a room?
Whose soul in Heaven alive doth aye remain,
Whose works on earth so many lives maintain."

This monument is highly coloured, and has a tablet in the centre with the above inscription on it, and is surrounded by two cupids holding carved clusters, and finished under the panel with two Egyptian lions. At the top are two cherubs in the corners. This is surrounded by fluted Corinthian columns supporting an entablature, in the frieze of which is the city crest and two coats of arms all painted and gilded. Under the supporting slab is the skull and crossed bones.

The last monument is to another Thomas Walker, and is similar in character to the others, of black marble with a white vein, and the panel with the inscription is red Devonshire marble. The entablature to this one is white, and the Corinthian columns black. Underneath the supporting slab the skull occurs again, with the hour-glass above a pair of wings, and not the hour-glass below as in the others. The Walker coat of arms is over the top of this one. The church seems to be full of Walkers, and there is one other which adds another link in the church's history, as he gave the silver Communion flagon, as the inscription says, "to the parish of St. Mary Arches by Coll. James Walker, Dec., 1691." His memorial stone is at the head of the south aisle.

Over the south entrance on the inside is the Royal coat of arms of the House of Hanover, and on the exterior are the Royal arms in relief, as borne from 1603 till the union with Scotland in 1707, and probably put up at the restoration in 1660.

In 1688 Johanna Andrews presented a silver paten to the church, and another in 1706.

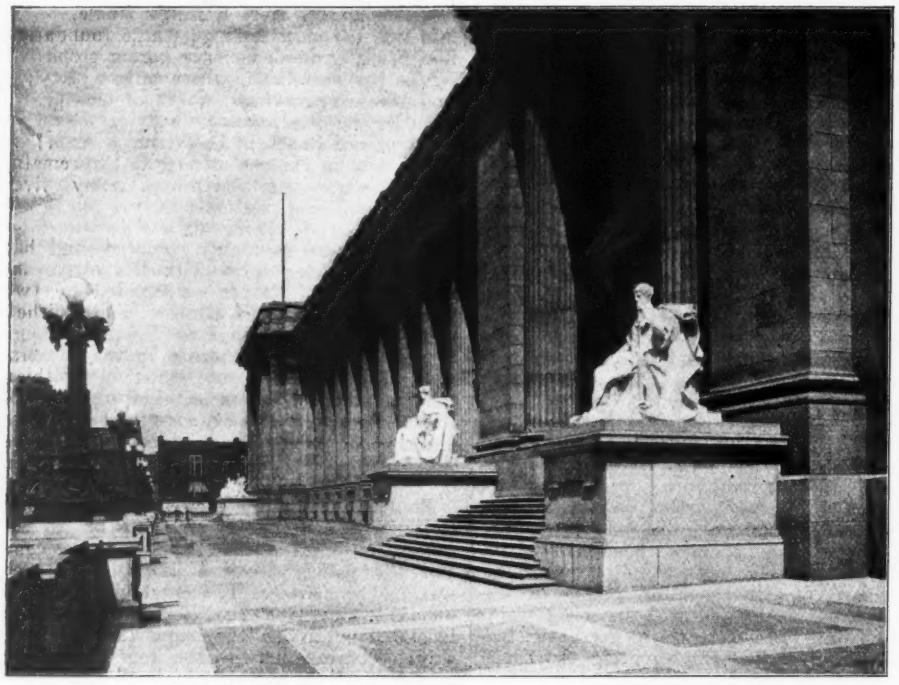
In the year 1704, Dr. Richard Walker, the celebrated author of the "Sufferings of the Clergy," was presented to this benefice, and many of his family were buried in the church.

In 1709 the rector was provided with a parsonage house and garden, situated in S. Bartholomew-street, and the only original one, of importance, belonging to any of the city churches. It was the gift of Joan Tucker, and at the same time she charged the premises with an annual payment of 52s., or 1s. on every Sunday, to be distributed by the churchwardens and overseers in bread.

During the next thirty years nothing is recorded until on Sunday, November 25, 1739, when John Wesley accepted an invitation to preach in Exeter, and the Church of St. Mary Arches was set apart for his use at the morning and afternoon service. In the morning he preached a powerful sermon from Romans xiv., 17; but the discourse was not of a character to suit the rector, who withdrew the consent he had given for the afternoon service. He told Mr. Wesley that he believed that all he said was true, and that it was the doctrine of the Church of England; but it was not guarded; it was dangerous, and might "lead people into enthusiasm or despair."

Before leaving the church we must just look round at the windows. Those in the north and south aisles are of the Perpendicular period, and all three-light windows with the upper portion filled in with tracery. The two easternmost windows in the north aisle are a little different in section only. The windows in the east and west walls are both of the Perpendicular period, but rather debased in detail. In the east windows there has lately been placed some nice stained-glass.

The roof over the nave and south aisle is waggon-shaped, divided into panels by moulded principal ribs and purlins, with carved bosses at the intersections. The roof covering the north aisle is waggon-shaped and ceiled all over, and of recent date. The whole of the roofs externally have been covered with slates at a later period, which gives it the appearance of a modern church, and so detracts from its



Federal Court House and Post Office, Indianapolis (*Messrs. Rankin, Kellog, & Crane*).

interest, as also does the recent addition of a stuccoed front. On entering the church this idea is quite dispelled, and makes one think of a miniature cathedral.

In the Ecclesiastical Survey, published in 1782, this living is charged in the King's books at 10*l.* value, and in conjunction with St. Olave at 90*l.* per annum.

This church has some interesting treasures in the way of altar covers, etc., one dating from the XIVth century, said to have been made out of the remains of an ancient cope. On this is worked figures of saints and angels, and some now being in a state of good preservation.

Should anyone who reads this brief history ever pay a visit to the "Ever Faithful City," and have an hour or so to spare, he should not fail to pay a visit to this interesting old church after seeing the Cathedral.

As mentioned before, in the XVIth century this was looked upon as the municipal church, and to revive this ancient custom the last Mayor of Exeter attended this church in state during his year of office.

In conclusion, I can only say that those of an architectural, archæological, ecclesiastical, or antiquarian turn of mind who take the trouble to search out this church will be amply repaid.

J. HUGHAN SHEARER.

THE ARCHITECTURAL ASSOCIATION :

ARCHITECTURAL DESIGN IN AMERICA.

AN ordinary fortnightly meeting of the Architectural Association was held on Friday evening last week at No. 18, Tufton-street, Westminster, S.W., Mr. Walter Cave, Vice-President, in the chair.

The minutes and nominations having been read, the following gentlemen were elected as members, *i.e.* :—

J. Quekett, Kew.
H. Brewis, Cromwell-road, S.W.
E. J. Hatherell, Richmond, Surrey.
H. F. Chandler, Highgate, N.
C. E. F. Roe, Poplar, E.
J. G. Allen, West Hampstead.
J. S. Huxley, Tonbridge.
A. F. Bryan, Great George-street, S.W.
F. Winton Newman, Church End, Finchley, N.

It was announced that Mr. E. R. Sladen had been reinstated as a member.

Mr. Tanner, junr., Hon. Secretary, said that he had visited the President, Mr. R. S. Balfour, who was much improved in health, and who was just going out of town for a holiday.

It was announced that Mr. J. B. Fulton had resigned from the Council, and that it is proposed to nominate Mr. F. D. Clapham at the next meeting to fill the vacancy.

Mr. Tanner stated that a meeting of the Discussion Section will be held on February 6, at 7.30 p.m. Paper by Mr. T. L. Dale on "Architecture and the Public."

Mr. Tanner also announced that the A.A. Students' smoking concert was to be held in the Georgian Hall, New Gaiety Restaurant, on Friday, March 1. On February 28 a ladies' night will be held. Tickets for smoking concert may be obtained in the office of the Association.

Mr. Arthur Keen then read a paper by Mr. R. C. Sturgis on "General Tendencies of Modern Architectural Design in America, and American and European School Work." Before reading the paper, Mr. Keen said :—

"May I say by way of introduction that Mr. Sturgis, the senior partner in the firm of Sturgis and Barton, who has kindly written this paper for us, is an architect with a large practice in Boston, doing Government and municipal work, in addition to the domestic work which forms the principal part of his private practice. He is Vice-President of the Boston Society of Architects, a Fellow of the American Institute, and Chairman of the Board of Schoolhouse Commissioners of the City of Boston. This Board controls the erection of the State schools, buys the sites, appoints the architects, and employs the builders, and in his position as Chairman Mr. Sturgis is intimately associated with many leading architects. As a younger man he spent a year in the office of a London architect to get experience of English work, and he has been many times since in England and on the Continent; so that he is well acquainted with English work and well qualified to compare modern American work with what is being done here."

Mr. Keen then read the following paper, and showed a large number of lantern-slides, most of which had been made since Saturday from photographs. It had been a difficult matter to get so many done in such a short time :

"At the time of the break with the mother country architecture in that part of the country which was colonised by England was following closely on the lines of English work. At the end of the XVIIIth century the magnificent architectural record of the mediæval builders had become history, and archæology and classic forms and classic formula had taken the place of a vital art.

The revived classic forms with their fundamental principles of proportion and symmetry were, however, by no means unsuited to the new conditions among which they found development. The growth of cities, with the obvious requirements of direct thoroughfares and economical use of ground, encouraged and gave reasonable opportunity for the symmetry of classic planning. From the practical and economical point of view the regular plan commended itself on all sides, and the fact that it was the prevailing fashion on the Continent was sufficient to fix it firmly as the universally-accepted method in America.

In England it had its wise and reasonable expression in innumerable buildings in city and country, and while the rambling and picturesque plan of the Elizabethan and Jacobean work will always remain, to the foreigner at least, the distinctive and altogether perfect expression of English domestic architecture, the houses built under Queen Anne and the Georges have a charming quality of homelike comfort which in its way is unequalled, and which, in its close adaptation to what one might call modern domestic conditions, was more reasonable than a plan based on feudal conditions.

This was the condition architecturally that set its stamp on the English Colonies in America, and, inasmuch as we had not the wealth of the mother country, we followed the simplest and best expressions and were under no temptation to imitate the extravagances of the more ambitious English examples. It was that charming house in the close at Salisbury, and the host of examples that are in line with this work of Wren's—not Houghton or Blenheim—that guided the taste of the Colonists. For a while after the establishment of the United States our architecture continued in a quiet and dignified way to follow the trend of matters architectural in the Western world. The acts that made the United States an independent Power were not acts of revolution in the ordinarily accepted sense. We had no quarrel with England's Government, as a form of government, but only with certain exceptional applications of it that were invented for our special benefit. When, therefore, we started to govern ourselves, a republican form of government was adopted (we could not very well have had any other), but there was no radical change in our civilisation, our outlook, or our environment. The fine arts, architecture and literature, have their proper place and their due prominence in such a social condition. With Jefferson as with Washington these things were a necessary part of the equipment of a cultivated man; and the cultivated man was the one who naturally belonged at the head of affairs. These conditions, however, did not continue with us. A variety of causes demanded and produced a type of man essential for the development of a country of whose resources Washington had but the faintest perception. A type of man who must combine the indomitable courage and perseverance of the pioneer with the shrewdness of the promoter, who must be able to understand what the resources and possibilities of the country are and to be competent to develop them. Such men had neither the time nor the temperament for that sort of cultivation which every gentleman of the first generation considered essential.

Even in the old world the period from 1830-1870 was a dull time architecturally (to put it very mildly), and with us it was the abomination of desolation. Every kind of good precedent was thrown to the winds. Sound classic precedent slipped into a spurious Greek executed in wood; Gothic, which had long been a terra incognita, even to the cultivated, was explored by the ignorant and rendered in wood with the aid of the jig saw. Here and there were sporadic cases of fairly good work, but architecture as a whole was in a most deplorable state at the close of our civil war. In judging work of this period, however, it is only fair to bear in mind the special circumstances that differentiated the United States from the older Western civilisation. In the early days both economy and speed of construction favoured the use of wood, and the necessity of clearing the land made it practically imperative. Following on good Georgian precedent much good and exceedingly clever and interesting work was done. Stone precedents and examples were interpreted in wood with a delicate and charming sense of the difference in the character of the material. Thus wood came to be established as the common building material, and as long as good taste ruled and modest means limited expenditure the results were charming. But when men without cultivation or taste acquired wealth the temptation to extravagance and eccentricity resulted in work wholly bad; and these bad examples were received with popular approval and caused

rapid deterioration in the perception of what beauty and truth really meant. Rapid growth of wealth, and rapid expansion of the people into new territory, made it impossible to build in any but the quickest way, and the constant shifting of population encouraged ephemeral work. The contrast in the construction of railways in America and England is an excellent example of the necessities which forced upon America its methods. England, building for a compact and settled community, built with a view to permanency and safety. The United States, forced to build to serve scattered communities in vast unoccupied areas, with a sole eye to setting rails on which a train could run, built in the quickest and cheapest way; and it was years before there was time or money to consider better methods. In architecture it was the same story, and this accounts for, if it does not excuse, the amount of unstudied and vicious work done in the forties and fifties.

After 1865, with the establishment of peace and the rapid growth of prosperity, people had once more a chance to pay some attention to the fine arts. There was an enormous demand for buildings, and those who in the seventies were thinking of architecture as a profession had the assurance that the well-equipped and well-trained architect had before him a great career. Our own architectural schools were in their infancy, but one or two had already begun to do good work at that time. The Ecole des Beaux Arts at Paris offered the best opportunity for sound training. Our people have always felt kindly to France, and have admired her position in the world of fine arts. To Paris, then, our students went to receive sound training on classic lines. At the same time attention was again directed, chiefly through English influences, to the value and beauty of mediæval work. You know what that was in England and how Ruskin and a host of saner followers of that great enthusiast reawakened in the hearts and understanding of all English-speaking people the marvellous treasures of the centuries that preceded the Italian Renaissance.

With eyes newly opened our people began to see the sound commonsense beauty of the simple classic work of our forefathers.

Queen Anne and Georgian work and the buildings of the early days of Independence once more received the attention and reverence they deserved. A small but growing body of men began to stem the tide of horrors which had resulted from an ignorant and unreasoning demand for something new, something American, something which was not part and parcel of the effete civilisation they fancied we had left behind.

Added to this new self-respect for our past came a reawakening sense of the treasures of architectural history in mediæval times. It was like discovering a virgin field, so long had it lain fallow, and it was entered on with the greatest enthusiasm. Students returning from abroad had their sketch-books packed with picturesque and often very cleverly drawn sketches of French manor and farm houses, Romanesque work from the south of France, Early Italian work, the vigour of Tuscan palaces, the subtle beauty and gorgeous colour of the south and of Constantinople, and the Gothic of France and England. It was a surfeit of good things, far more than we were able to digest. The result at first was a host of miserable failures, and, to offset this, a few brilliant successes.

The few successes were, however, a great stimulus to the students following, and to those already at work. Each succeeding year saw the students begin work better equipped, and the men in active practice gained knowledge rapidly through great opportunities, and by failure as well as by success. A nation with so little in the way of architectural inheritance, and with so few conservative tendencies, must necessarily be open-minded to new impressions. The American student abroad is constantly envying the greater opportunities which Englishmen have. They envy them not alone nor chiefly for the architectural treasures that surround them at home, for the wealth of precedent that guides them aright in English ways, but for the handy Continent. France and Holland across the Channel, Italy but a few hours' journey further on, so that a short holiday may at any time put the English architect in the midst of the best examples of architecture in the Western world. But, as a matter of fact, one is inclined to think that the American student, when he does cross the Atlantic, sees with more open eyes, and profits more readily from what he sees, and so is better off than the Englishmen; nor need he really envy those who live in the midst of the treasures of the Continent. The Frenchman may go to Italy to study, but does not often trouble himself to seek architectural knowledge in England or Holland. The German may travel in France and Italy, but apparently profits little by such experience. But the American student goes everywhere with the eager eye of one to whom all is new and wonderful. No native bias, no prejudice, no conservative respect for the work of his own people hampers him in his study.

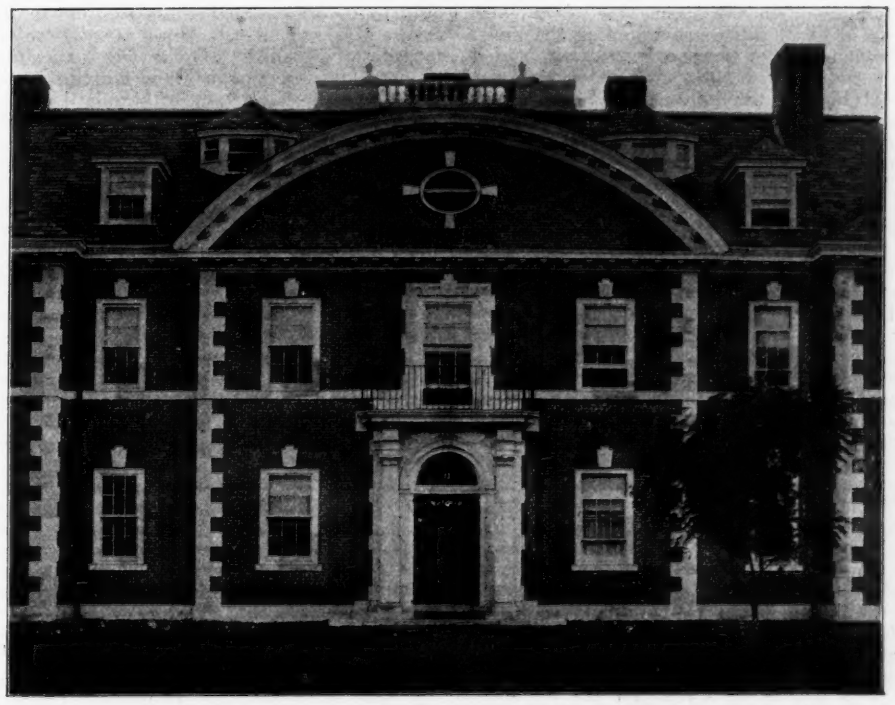
This is a great advantage. Another equally great is that architects in the United States are largely drawn from the class who have the means for a thorough education as a foundation. To limit a gentleman's occupation to the army, the navy, and the Church, would be utterly unintelligible to an American. The church here undoubtedly holds an important place in the community, but that could not be said of the army and navy. Nor is diplomatic service as yet looked upon as an important and interesting field for the well-educated and ambitious man. Those who in England are by birth entitled to the best education are attracted to occupations which seldom tempt us. The result is that professions like architecture, medicine, and the law are filled by the best educated men. Architecture as a profession is as highly esteemed as the law, and rather higher than the occupations which until recently were looked upon as the only ones available for an English gentleman's son. The students who go abroad are generally men well equipped intellectually to take full advantage of the opportunities offered them.

The result of this with us has been twofold. The lack of established precedent and the wealth of ideas accumulated by study abroad has had the effect of urging our people to new effort, and our confidence in our great and prosperous future has helped us to believe that we would develop a new style of architecture, something American, something quite our own. On the other hand, the study of the fine old examples has encouraged a sincere and deep-rooted admiration of the masterpieces of the past, and a wholesome modesty as to our ability to equal them by anything that does not follow closely on the precedents of the past.

Both phases have had their development here, and one is inclined to think that the sober sense of the present generation sees good in both points of view, but is far more governed by the former. That is, we may in time develop something especially adapted to modern use—the many-storied structure on immensely valuable land may bring its logical solution. The modern methods of construction—the steel skeleton—reinforced concrete—may lead us to new expression; but, if we do so develop, it will be along the lines of the sound planning of the schools, the reasonable laws of construction and decoration that have been exemplified and proved in all the work of the past, and that has stood the test of time.

The best architectural work of the past decade in America is not new, is not American, but is conservative. More conservative, one ventures to say, than much of the work of France, with its exposition style of architecture influencing work that is worthy of more serious treatment; more conservative than Germany, with its often grotesque strivings for an art that is new; more conservative than England, whose civic architecture has neither advanced mediæval development from the point at which Pugin placed it when the Houses of Parliament were built, nor improved on the classic sobriety and dignity of St. George's Hall in Liverpool.

American architects have been influenced more or less by all the architectural experiments of the Continent, and have had their own vagaries of experiment. Richardson dug into the treasures of Romanesque work, and conceived and executed one or two noble buildings with the spirit of the past and a certain modern vitality; but the experiments conducted by his numerous followers brought disgrace and obloquy on the style. Only in the backwaters of civilisation is it attempted now. The decorative motives of India and the Far East were taken by some as the proper form in which to clothe a skeleton structure—the ornament being truly superficial rather than structural—a sound enough theory. But the experiments along this line were more interesting than convincing. Modern French has set its rather loud and often vulgar mark on much of our municipal and domestic work in the great cities. The debased examples of this, however, have been such a warning to the leaders in this movement that the work of these leaders is tending to the quietest, simplest, and most refined expression of French art; indeed, the best work of this class is almost more closely akin to the precedents of Italy—the Renaissance fountain-head—than to those of France. English Gothic, especially its collegiate phase, has found its expression here, and with the chastened memory of the early American barbarities in this style, and a grateful affection for such sound old-school examples as Trinity Church, New York, the development here has not departed much from sound precedent, but in a general way tends toward what might have been expected



Cottage Club, Princeton: Centre Portion of Front (Messrs. McKim, Mead, & White).

Cottage Club, Princeton: Court and Colonnade in Rear (Messrs. McKim, Mead, & White).

if Gothic had continued its natural course. It is, perhaps, needless to add that there has been much ignorant handling of this most difficult style.

The most discouraging tendency in American architecture to-day is its individualistic character. It is the natural outcome of our form of popular government, and it is one of the penalties we pay, along with untrained public service and ill-executed public utilities, for the uplifting effect on the community of popular control, for the self-respect and confidence engendered by the sense that each voter has of being a definite factor in shaping the progress and the destiny of his country.

The effect of the individual tendency is two-fold: first, to encourage the expenditure of study, time, and money on private projects, unhampered by limiting restraints, even those that are for the general good. The individual may exercise his taste and judgment, or give a free hand to the architect in whom he has confidence. The architect thus has exceptional opportunities.

On the other hand, the individual tendency makes directly against all work that has for its primary element the general good; and, consequently, we lack in America good examples of work which depend more on the execution of a well-considered whole than on the excellence of detail. That our architects are able to handle well general problems of planning and composition was abundantly shown in the buildings surrounding the Court of Honour in the Chicago Exposition, and it has been repeated with more or less of success at Buffalo, Omaha, and St. Louis. Such opportunities do not occur under ordinary conditions governing either Federal or large State and municipal undertakings.

The absolutely autocratic control of Napoléon made possible the reconstruction of Paris. The almost equally autocratic or independent County Council cuts great thoroughfares through London, and lays down conditions for the buildings which are to line them. The control of great properties in the hands of individual owners makes possible the systematic and uniform treatment of a given civic area. You think promptly of Cubitt and Belgravia, but there is something pretty distinguished there which Kensington lacks. There are things in Bath not often rivalled to-day in city streets or squares. No such conditions exist with us.

It may be said that France is now a Republic, and yet Paris has still laws which, by limiting cornices and skylines, produce the regularity which is almost the only thing needed to give dignity and distinction to a great thoroughfare. It may equally be said that the South American Republics, in their great cities, Buenos Ayres and Rio de Janeiro, show a sense of general civic beauty which is not to be accounted for by autocratic control or large holdings of real estate. This is true, but France grew into Republicanism with a well-defined and established policy, and had sufficient taste to appreciate it. Brazil and the Argentine inherited the Latin outlook, which is primarily one of subservience to law and order; and temperamentally they, too, like the French, were sufficiently imbued with the love of art to appreciate this inherited tradition, England, from whom we inherited our architectural tradition, in common with most of the Anglo-Saxons, laid no great stress on general schemes of civic beauty.

It is perhaps not strange, but it is certainly deplorable, that America, with its many brilliant examples of individual or isolated works of architecture, should be so absolutely lacking in distinguished civic architecture. No autocratic power, either of an individual or of a group of men, has as yet been sufficiently interested in large architectural schemes as to ensure their execution. Perhaps for us it is as well that there should not be and that we should turn, perforce, for support and encouragement to the people themselves; but I believe it is more than doubtful if this expression of art will ever be popular.

In view of recent developments, we may await this issue with more patience and courage, for city after city has awakened to a sense of its lost opportunities in the past only to determine that those that lie in the future shall not be lost. Here at least we are reaping the benefit of the big exposition groups, and the lesson they taught of the value of concerted action, of standard dimensions and repeats, of a well-considered whole, in which the parts, while admitting variety, yet conform to the general laws controlling the whole. Most of these are still in the condition of beautiful drawings embodying fine ideas; here and there one, as in Cleveland, is already taking form. While we may not expect the public to imitate or even fully understand these plans, we must for their development depend on the people for support, and unless our ideas are rational and practical, and the average man can see some return for his money—beauty is beginning to have its commercial value—we cannot advance far in the solution of broader problems.

In our individual work, where most progress has been made, our incursions into a variety of styles has resulted in a pretty generally diffused knowledge, a somewhat quick recovery from the strained effort to do something new and different, and a restrained sobriety among our best men which is having its influence in moulding taste throughout the country.

On the whole, then, the general tendency of the best work in America is toward conservative lines, but in following this course one sees that intelligent use of precedent which shows that the stage of student and copyist is past, and that we are entering—slowly, but soberly and carefully—on the more responsible period of imaginative handling of well-understood laws. That we have learned that there are laws under which we work is a most important thing; once accept this, and we have gained that perfect freedom which is possible only to those who have learned to obey.

The illustrations which are to be shown are necessarily very few, and cannot be considered even representative of the vast architectural field in the United States. You have perhaps noted that I have said no word as to the old French influence and its architectural records in Detroit, St. Louis, or New Orleans, or of the Spanish work in California and on the Mexican border. These have had a strong influence, and especially the latter—the charming work of the Spanish monks on the Pacific coast. Some of the slides will show modern interpretations of this.

With the exception of the first few slides the work shown is nearly all quite modern. These few early slides are simply to show the kind of thing we had in Colonial days, a type familiar enough in England, but very cleverly adapted for execution in wood here, and what we were doing in the early days of independence. The gloomy architectural period from then up to modern days might have been shown as a warning, but that no body of English architects needs."

The slides included the following:—

The old State House in Boston, built in Colonial days, and still adorned with the Lion and the Unicorn.

A Maryland house, of a type distinctly suggestive of the work executed in England in the end of the XVIIIth century, and yet, said the author, beautifully adapted in the detail of its architectural colonnade for execution in wood.

One of the buildings of the University of Virginia at Charlottesville. It was begun in 1817, and although fine, it was distinctly a wooden reproduction of stone, and consequently missed the honesty of the earlier work, which recognised the materials and modified it accordingly.

A view of the Capitol at Washington, which in many ways was the most monumental building in America, and when the scheme for the development of the city along the original lines laid out by the designer of the Capitol was carried out, it would have a setting in every way worthy.

The Octagon House in Washington, now owned and occupied as the headquarters of the American Institute of Architects.

The Minnesota State Capitol, designed by Mr. Cass Gilbert and completed a few years ago. A fine and dignified piece of classic work, executed by a man who understands his material thoroughly, and handles his knowledge with the skill of the expert.

The Capitol of Rhode Island, at Providence, by Messrs. McKim, Mead, & White. The work, which belonged to their later and more mature period of the last ten years or so, was almost invariably scholarly, refined, and restrained. This was especially true of the work that had the individual stamp of Mr. McKim, although the work of the late Stamford White had a brilliancy which in its way was almost equally interesting.

The Federal Court-House and Post Office in Indianapolis, by Messrs. Rankin, Kellogg, & Crane. Up to a few years ago the United States Government had its work done by the supervising architect of the Treasury, and as this office was not a well paid one, it was not always filled by competent men, and the work of the Federal Government was a disgrace to the profession of architecture. Under the terms of the Tarsney Act, permission was given to have limited competitions for the more important Federal buildings, and this building was the result of such a competition. Another result of the agitation had been the improvement of the office of the supervising architect; the present incumbent, for a ridiculously low salary, was doing work of standard excellence all over the country.

An example of the work being executed from the Washington office under Mr. J. K. Taylor, the present supervising architect of the Treasury work—the Post Office at Annapolis, Maryland, recalling pleasantly the characteristics of this old Colonial town;

an excellent piece of work, both in mass and in detail.

The Library of Columbia University, New York, standing far remote from the heart of the city, on high land, and is the central feature of the College group. It was designed by Messrs. McKim, Mead, & White, and it was impossible to give in any one view an adequate idea of the beauty of this building and of its setting.

The Harvard Medical School in Boston, designed by Messrs. Shepley, Rutan, & Coolidge. The buildings, opened in 1906, are of white Vermont marble, and the most notable thing architecturally is the competent way in which buildings of severe simplicity, the utilitarian factor in a technical school, with the consequent limitations in regard to fenestration, had been made to serve as portions of a group which, taken as a whole, was really monumental.

The New York public library, with one front on Fifth Avenue and another facing on the Park which stretches to Fourth Avenue. In some ways the rear is almost more interesting because the problem of the many-storied and much subdivided space occupied by stacks has been so cleverly expressed on the exterior and so cleverly tied in with the various architectural requirements of the other façades. This could not be said of the Boston Public Library, where the design of the Bates Hall, the great reading-room, was forced around the sides, where no such excuse for great windows exists, but quite the reverse.

The Museum of Science and Art, Philadelphia, executed by three firms associated together—Messrs. Cope & Stewardson, Frank Miles Day & Brother, and Wilson Eyre. Although the work struck, perhaps, too strongly the note of mediæval Italy, it was still a charming piece of work.

The Horticultural Hall in Boston, by Messrs. Wheelwright & Haven. A building showing strongly the influence of Queen Anne and Georgian work—a style that the author hardly thought they had yet learned to handle as well as Englishmen handle it at home.

Horticultural Hall in Philadelphia, by Messrs. Frank Miles Day & Brother—a building reminiscent of Italy and yet full of modern character, and a building which, situated as it is on Broad Street, and with space about it, would always make its mark, no matter how much it was surrounded by modern twenty-story buildings.

Cottage Club at Prinecton, by Messrs. McKim, Mead, & White—two views (a) front detail of the centre portion; (b) open court and colonnade at the rear. While the firm never fail in their large and public buildings to get dignity and monumental qualities, on the other hand they seldom failed in work of this kind—semi-domestic—in getting a charming home-like touch.

In Ivy Club at Princeton, by Messrs. Cope & Stewardson, there was no mistaking English precedent, but it was a following of English precedent of which they need not be ashamed.

In speaking of school buildings, the author said that the public school was the foundation of all the prosperity of the States. He thought that American school buildings might compare favourably with those executed anywhere. American school authorities all believed in left-hand light; it avoided the difficulty of light in the teacher's eyes opposite her, or in the eyes of the pupils opposite them; but it necessitated an enormous amount of glass on one side, from which light was drawn. The Ellis Mendell School, by Messrs. Andrews, Jacques, and Rantoul, of Boston, was an excellent example of one of the solutions of this most difficult problem. Each one of the piers between windows represented a constructive support in correspondence to the steel beams which took the 24 ft. span of the rooms.

The main entrance to the station at Albany, N.Y., designed by Messrs. Shepley, Rutan, & Coolidge, Boston, was a modern American type coming in on the level with the railway tracks, which are reached by subways and staircases going up to the various lines. This system or a variant of it was the commonest one now in use, and allowed the free American citizen to cross the lines if he wanted to, which he generally did, and which he did without any disagreeable result, for there were very few accidents of any sort owing to the freedom with which passengers cross and re-cross the lines, even in busy stations.

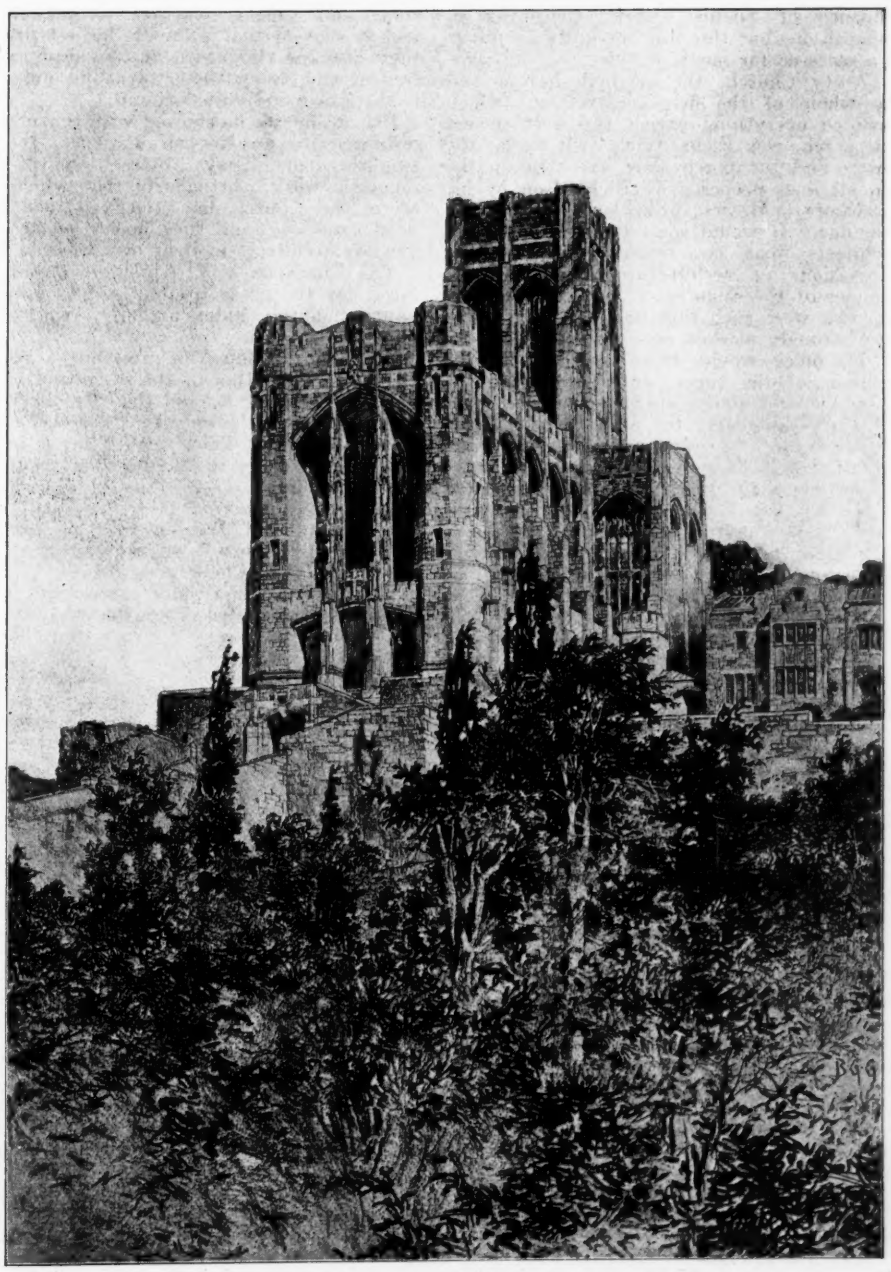
Of the tall office building—which Englishmen thought characteristic of architecture in the United States—the author showed the New York Broadway Chambers, by Mr. Cass Gilbert. It was typical of that class of building which had its ornament massed on the top, and it was an open question whether this was an effective place to put ornament. It was all very well as long as the building stood comparatively alone and could be seen from various distant points rising above the mass of lower buildings, but with the rapid increase of such buildings during the last ten years in New York no sky-scraper now stood alone. The Broadway Chambers was chosen by the American Society of Civil Engineers as a typical example of modern steel construction, and models were exhibited at the Paris Exposition of 1900. As a matter of fact, it was not expressive in its exterior of steel construction except for the lightness of the piers of the lower story, and since 1900 American architects had wrestled and are still wrestling with the problem of trying to express in their exterior fireproof covering the nature of the skeleton underneath. Some had attempted to do this by emphasising the verticals and entirely ignoring the horizontals, and others had attempted to do it by using a material which was frankly, like the veneer of St. Mark's, a veneer only; but no really satisfactory solution of the problem had yet been evolved.

Speaking of another building, the author said that it would probably have been noticed in more than one example that American bricklayers used the bond more as an ornament than as if it had any special constructional reason for existence. The ordinary method of bonding a brick wall in the States was to have a highly-paid mason build up the outside 4 in. and put a bond, sometimes a course of headers or a course of Flemish headers about once in every five courses; sometimes merely a piece of wire tieing into the backing which was being built up by bricklayers at a lower price and laid in anyhow. Both the American limes and cements were excellent, and as any building was liable to be pulled down within ten or fifteen years of the time it was built, no one put very much emphasis on questions of great durability.

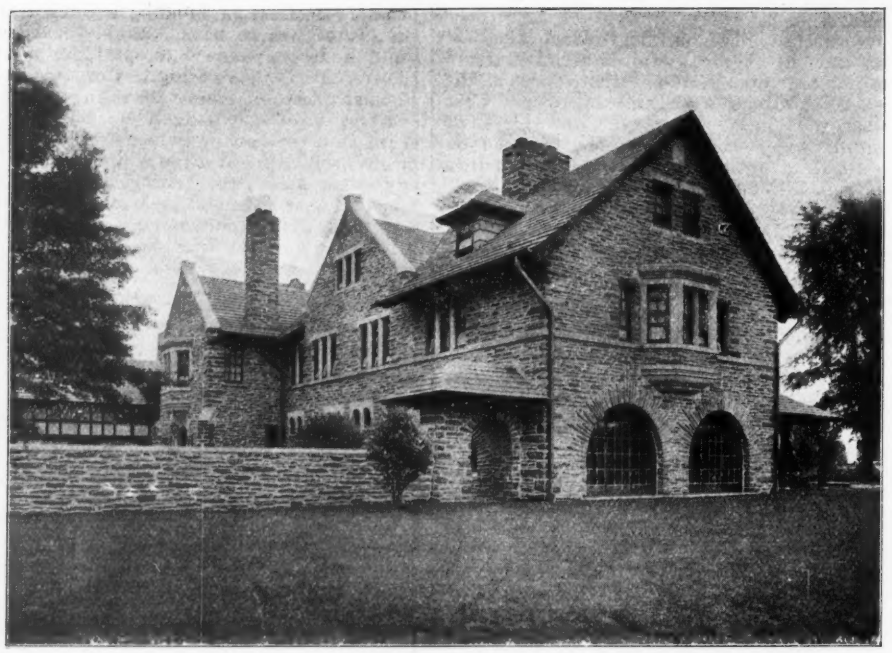
The upper portion of the Central Trust Company's building, Chicago, by Messrs. Holabird & Roche—an attempt to express steel construction by a material which was a veneer. The steel frame was covered by terra-cotta, and the material was frankly recognised in the use of ornament which demands for its effect repetition. This seemed to the author to be a reasonable and proper use of ornamental terra-cotta, and not the way in which it was used in our Natural History Museum, where the various ornaments should have been all different and consequently executed not in terra-cotta but in stone.

Ponce de Leon Hotel in St. Augustine, Florida, one of the early works of Messrs. Carrere & Hastings. Built for a semi-tropical climate and executed with a free handling of a sort of Spanish Renaissance.

A New York apartment house, by Messrs. Ludlow & Valentine, showing the influence of the Ecole des Beaux Arts, which had laid its heavy hand on a great deal of New York work. Like all things of this sort that



Chapel, Military Academy, West Point (*Messrs. Cram, Goodhue, & Ferguson*).



House near Philadelphia (Mr. Wilson Eyre).

become the fashion with them they rapidly degenerate, and to-day the men who were leaders in this movement five or ten years ago were already stemming it by their refined and quiet work, which yet showed the influence of this splendid training.

Hospital outside Philadelphia, by Messrs. Cope & Stewardson—an expression of the influence of Spanish work. Charming in composition, but this did not quite excuse it in a place as far north as this.

Trinity Church, the original design, and the whole of the first construction, which included everything except the west towers and porch, was Richardson's own work; the towers and the porch were executed on the general lines proposed by Richardson by his successors, Messrs. Shepley, Rutan, & Coolidge. It would seem strange to English architects that two such widely variant expressions of architecture should be the product of the same office, but conditions in America were such that unless a man had a very strongly marked individuality the work of his office would vary according to the fashions of the times, or according to the character and ability of the men who were his chief designers, for under modern conditions no architect who was really busy and carrying on a large practice could do more than direct the work that was being produced under his name. It was one of the most unfortunate limitations of modern times.

Chapel at West Point; the Military Academy of the Federal Government, by Messrs. Crain, Goodhue, & Ferguson. The building is situated on high land on the Hudson about thirty miles above New York, and is one of a large group of buildings which the firm are erecting for the United States Government.

The church at Cambridge—in this case Roman Catholic, by Messrs. Maginnis, Walsh & Sullivan. As a rule, Romanists in America had not selected architects with much judgment, and consequently they have few churches, big or little, which are a credit to the profession. But this church was a charming example of a modern interpretation of North Italian work, simple, straightforward, inexpensive, ornament well placed, beautifully designed and beautifully executed.

Church at Winchester, by Messrs. Warren, Smith & Biscoe. The senior partner of this firm is professor of architecture at Harvard University, and they therefore expected naturally this scholarly expression of modern Gothic work, executed with modern material, brick. English architects had long been able to handle brick in a successful way, and to handle it even for Gothic work, but it was quite recently that Americans had appreciated the fact that it was possible to use brick for such a building. It went without saying that they did not as yet pretend to do this as well as English architects.

A couple of clubs: University Club in New York, by Messrs. McKim, Mead, & White. An Italian palace used as a precedent, but used as only a master would use it in copying simply and in a wonderfully beautiful way—a thoroughly understood precedent. The two main façades of the building were almost beyond criticism; they represented faithfully the great rooms and the mezzanines, of which the building was composed. It was worth noting in this building how effectively the designer had made use of various surfaces of stone and various textures to get effects, and it showed that even the busiest firm, if they had the right men at the head, would control and direct their work and put upon it their own individual stamp.

Private houses he showed with considerable diffidence to an English audience, for the English had always been prominent in domestic work, particularly that which was set in the country, but Americans had some good examples, and they hoped yet to rival English architects in their own especial field.

The Chairman said they must thank Mr. Keen for the great trouble he had taken in explaining the slides and for reading the paper.

Mr. Louis Ambler, in proposing a vote of thanks to the author of the paper and to Mr. Keen for reading it, said that Mr. Keen and he were almost the only two members of the Association who knew Mr. Sturgis in the year he was here in London, for they were both assistants in the same office as he was as an improver some twenty years ago. They had the pleasure of knowing him personally, and it was interesting to hear his views on American architecture. Whether Mr. Sturgis's views quite agreed with those held by that audience he (the speaker) had his doubts, and he rather regretted that the author did not show any of his own work, of which there was a great deal, and it must have been his modesty which had prevented his doing so, for his work was not only large in amount but interesting in character and some of it was very good. Many of them had seen before most of the views shown that evening. When Mr. McKim, of the firm of McKim, Mead, & White, came over to London some years ago to receive the Royal gold medal of the Royal Institute of British Architects, and again, a few years before that, when Mr. Hunt, another New York architect, came for the same purpose, some very interesting illustrations were shown of their work of both public and private buildings—magnificent houses, palaces almost—which they had erected for New York millionaires similar in style to some of the buildings they had seen that evening. He always admired that hotel Ponce de Leon, at St. Augustine, Florida, by Messrs. Carrère & Hastings, and at the time it was published in England it created a sensation, and it had been the inspiration for a good many buildings not only in America, but here also, and it would have been interesting to have seen other buildings developed on those lines, with the Spanish influence and inspiration, but Americans seemed to have departed rather from that and to have gone in more for the Italian school. They could not help noting that Messrs. McKim, Mead & White had based most of their designs on Italian work, and it seemed to him that the nearer they got to the beauties and proportions of the originals the better their work was. As to the early buildings, based on the Georgian models of England—the early Colonial buildings—it was interesting to notice how very similar they were to our own examples which remain here; the only difference seemed to be that they were built more in wood; and whether one could defend those colonnades in wood he was not sure. He agreed with Mr. Sturgis that if they must design in wood they should keep to the more quiet, flat style of decoration attached to the building, rather than to have immense colonnades. He was not speaking of those small, low, colonnades—perhaps 12 ft. or 15 ft. high—that formed what were called piazzas, he thought, but those huge ones going up two or three stories in the front, like the façades of Roman temples. One rather wondered why, in a new country where wood was the principal building materials, they had not built in the "half-timber" style, carrying on and developing the tradition of the old buildings of the XVIth and XVIth centuries in England with which many of the earlier settlers in New England must have been familiar. Not having been in America, he was afraid he had no light to throw on the buildings they had seen, but after hearing what Mr. McKim had to say when he was over here of the opportunities he and other leading architects had of erecting buildings on the grand style on large open sites, and designing these large open spaces—very much larger in scale and extent than our Victoria Memorial, on which we prided ourselves—he was surprised to hear Mr. Sturgis speak as though they had no such opportunities. His (the speaker's) opinion had been that there were more opportunities for architects in America than seemed to be the case judging from Mr. Sturgis. In those free libraries on large square sites and open spaces and wide streets, etc., the architects of America seemed to have greater opportunities than we in this country. In fact, the laying out of their cities, as far as one could judge, was more on the lines of the laying out of those fine Continental cities, such as Paris, Munich, and Berlin. But Mr. Sturgis seemed to deny this. One could not help admiring some of those quiet collegiate buildings, reminiscent of Oxford and Cambridge, and one felt that when the architects had tried to use the old English domestic styles that the nearer they got to the originals the more satisfactory was the result. One rather regretted to see that while mullion windows had been used in some instances, sash frames had also been employed, and there, as here, in modern work the result was unsatisfactory.

Mr. Matt Garbutt, in seconding the vote of thanks, said that judging from some plans shown at the recent Congress of Architects he was under the impression that Americans had enormous chances in the way of laying out cities and streets on a grand scale and in filling up those cities with buildings to match the scale of the general plan. Some few years ago many of them were interested in the Phœbe Hearst scheme for the University of Columbia, where a mile or two of land was given and the amount of money available was practically unlimited. The whole scheme suggested an architect's paradise, though it was not suited to the English architect, for our training was not adapted to produce men for such work. What struck him about the views they had been looking at was that many of them, certainly most of the best, took more than a little of their merit from the work of other countries. He was afraid that America could not expect to have anything like architecture of its own for a long time to come, because architecture was a thing which could not be made to order in a day or two. The effect of working in styles with which their architects were not familiar was curiously shown in some of the views they had been looking at of "Gothic" buildings. Was the half-timber work imitation half-timber? And the low pitch roofs, what were they covered with? Was it corrugated iron? Mr. Sturgis had a certain sense of humour, for he talked about beautiful gardens, and referred to buildings as "the architectural accessories thereto!" With Mr. Sturgis's views generally upon the designs to be seen in his country we could not

quarrel very much. He seemed to see quite clearly how detrimental the individual tendency was to good work, and he rather lamented the non-existence of such an autocratic power as existed for a little while in France to control the general scheme of things; but perhaps he was going a little farther than he need, for some of these American millionaires had so much money that they could practically exercise an autocratic power, and they sometimes helped to get good schemes carried out.

Mr. W. J. H. Leverton, in supporting the vote of thanks, said that as to the remark that Americans did not do much work that was purely their own, he thought that Richardson's work was decidedly characteristic, and as to the work of Messrs. McKim, Mead, & White he picked up a pamphlet on a bookstall recently treating entirely of their work, and in it he saw in several cases two apparently identical views of the same building. Examining them closely, he found that one was a view of a building designed by the firm, and the other was the building which they took the idea from. At first he thought that "gave the show away," but the object was to show how the idea had been taken and improved upon. It was rather an interesting study.

The Chairman, in putting the vote of thanks to the meeting, said it had been very interesting to see the views, but he could not help feeling rather glad that he was not an American when he heard about their business arrangements, and of busy men who really had no time to do more than direct. He believed that was absolutely the case, and a friend of his, Mr. Macartney, who would read the next paper to the Association, had been in America and had worked for a time in an American office, and he had given him an idea of what took place. The noise and bustle which took place and the extraordinary amount of work which had to be got through made anything like careful thinking impossible. It was not unusual to have one hundred men in one office, and when we came to think what an average office, with from ten to fifteen was like, it was awful to contemplate what the conditions with one hundred must be like. Another fact Mr. Macartney told him, though that was generally known, and it accounted for the great pressure of work and the tremendous competition, was that drawings had to be sent in a few days after instructions were received; there was no waiting; if fact, if they waited they were unsuccessful; a client went to an architect and asked him to do a design, and if it could not be produced in a week or less he went to someone else, and he might even go to someone else in less than that time. And the designs had to be done with extraordinary finish, and the man who made the best one in such circumstances got the work. And then out of the 5 per cent. paid the usual thing was that 75 per cent. of that went to office expenses; in other words, an architect made out of the 5 per cent. a quarter for himself; the rest was spent on office expenses and in getting out drawings. When architecture was such a business as this and was carried out on such an immense scale, he felt glad he did not have to compete. But he thought they ought to send a very hearty vote of thanks to Mr. Sturgis for his kindness in sending his paper and for the wonderful collection of photographs and slides.

The vote of thanks having been heartily agreed to.

Mr. Keen, in reply, said it had been a great pleasure to read the paper, and he had been greatly interested in the slides. He was afraid that there was no doubt that the conditions under which American work was produced were such as we could not grasp here. It seemed inconceivable that quiet and refined work could be done under such extraordinary conditions as those which prevailed. But it did get produced, and they had seen that evening some views of work which did Americans the greatest possible credit. He felt indebted to Mr. Yerbury for undertaking to produce many of the slides at very short notice. Mr. Yerbury had done the work well.

The Chairman announced that the next meeting will be held on February 8, when Mr. Mervyn E. Macartney will read a paper on "Regent Street."

The meeting then terminated.

BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

On the 29th ult. an election for two pensioners took place, by permission of the authorities, at the Builders' Institute, when Mrs. Maud Ellen Young was elected to a widow's pension, and Mr. Geo. Edward Hawkins to a clerk's pension.

The meeting was presided over by Mr. Howell J. Williams, L.C.C., J.P.

Two of the unsuccessful candidates, in a sadly necessitous state, were granted temporary relief.

THE SURVEYORS' INSTITUTION:

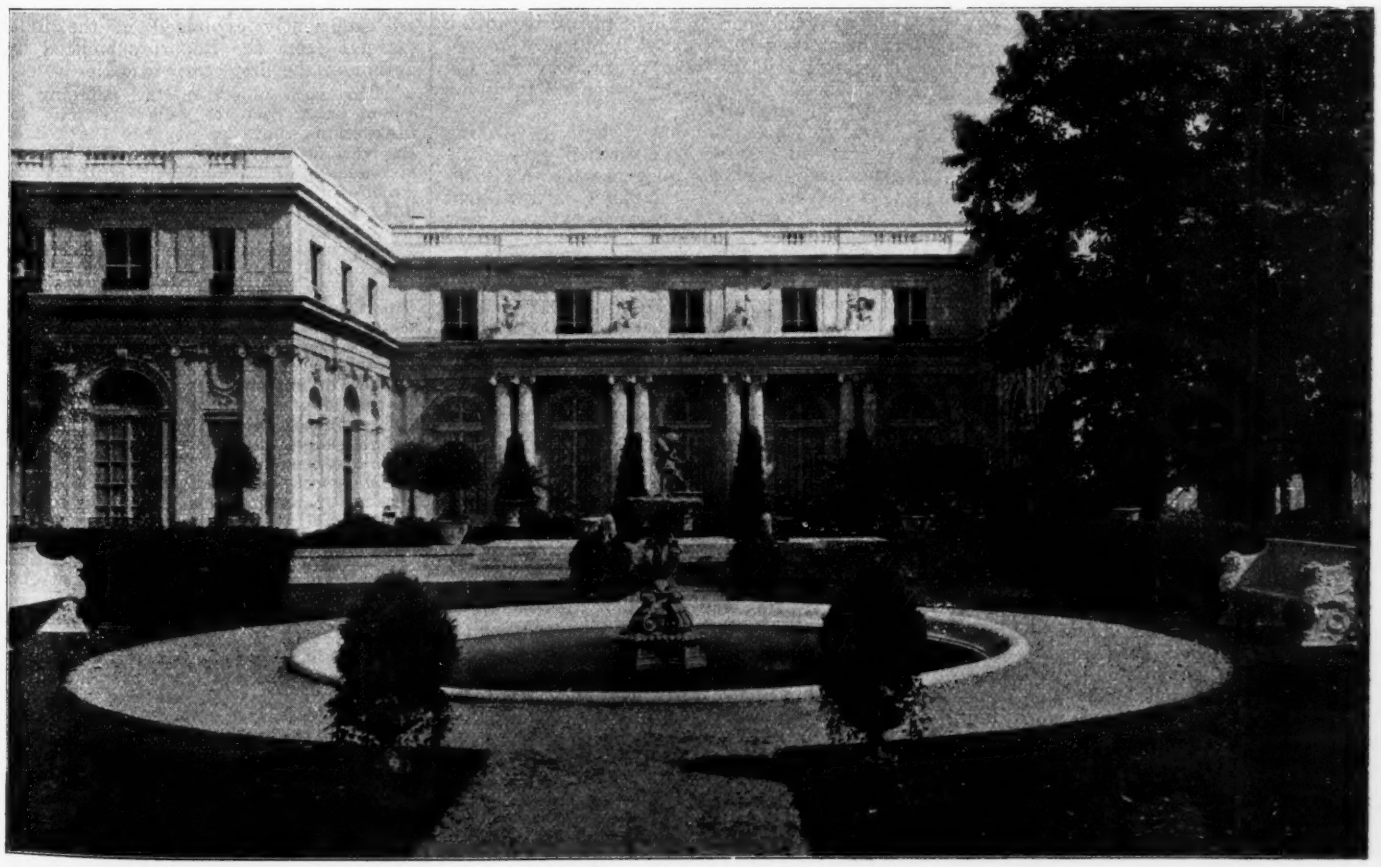
Uses of a Geological Collection.

An ordinary fortnightly meeting of the Surveyors' Institution was held on Monday at No. 12, Great George-street, Westminster, S.W., Mr. G. Langridge, President, in the chair.

The minutes having been read and some donations announced,

Dr. H. Woodward, F.R.S., Past President of the Geological Society, and late Keeper of Geology, British Museum (Natural History), read a paper on "The Uses of a Geological Collection. In speaking of the importance of a knowledge of geology and physiography to a surveyor, he said that without a knowledge of the soil and subsoil of an estate, the successful prosecution of "forestry," any more than of "agriculture," could not be carried on; and this knowledge had its root in geology, for the soil and subsoil were, originally, the result of the slow and gradual decomposition by atmospheric agents of the more solid strata which lie beneath. Without a knowledge of geology in managing an estate, one might be deceived as to the best road material to use, or might send many miles to procure stone or lime, or sand for mortar; or clay for bricks, for building or repairing farmsteads and walls, when the raw material existed close at hand, only needing to be quarried. Without geological knowledge a man might spend large sums fruitlessly in sinking wells for water supply if unacquainted with the structure of the rocks beneath, and the presence or absence of impervious water-bearing beds, and the most suitable position at which to reach them. These were but a few of the many practical aspects in which geology commended itself to the attention of the surveyor. But whilst readily admitting these economic propositions, they might ask, "What connection is there between these matters and the named and arranged collection of fossils recently placed in our hall?" It was to give a reason for its existence that he ventured to come before them that night.

As to the collection itself, it was based upon three cabinets of fossils, rocks, and minerals, one of which was presented by a Fellow of the Institution, Mr. C. E. Curtis; the other two having been acquired by purchase from the late Mr. Sorby, and a brother of Dr. H. C. Sorby, F.R.S., of Sheffield. To these collections had been added a series of specimens presented by the Trustees of the British Museum, and others the gift of private friends



House at Newport (Messrs. McKim, Mead, & White).

Having referred at some length to the life and work of William Smith, who was born in 1769 at Churchill, in Oxfordshire, and who received the award of the first Wollaston Gold Medal and Fund from the Geological Society in 1831, "as a great and original discoverer in English geology, and especially for his having been the first, in this country, to discover and to teach the identification of strata, and to determine their succession, by means of their embedded fossils," the author said that from the account he had given of the labours of William Smith it would be seen that the two chief objects of the collection of fossils displayed in the hall of the Institution were to illustrate the two great facts in geology which his life work illustrated, namely: (1) The orderly superposition of the great series of sedimentary rocks; and (2) That the fossil organisms, shells, corals, echinoderms, etc., found in each sedimentary deposit were, as a rule, characteristic of that particular formation, and, like coins of the reigning sovereign, they served to identify each stratum wherever it might be met with. This, then, was the practical bearing on the economic side of geology which the collection was intended to teach them. There was, of course, much more to be learnt even from so small a collection as the one they possessed there. Those fossil remains could tell them something of the physical conditions under which each stratum was laid down, *e.g.*, whether deposited as sediments in the sea or in fresh water lakes, or subaerially in sand-dunes or loess, or as peat-deposits, or under stalagmites in caves and fissures, or beneath showers of ashes and lapilli or streams of lava from a volcano such as Vesuvius, covering the cities of Herculaneum* and Pompeii,† or in the crevasses of a glacier, or under avalanches from the slopes of mountains. They might also learn somewhat of the climate of our earth in these remote times and its meteorological conditions, and might reconstruct for themselves the landscape and picture its fauna and flora. Or, again, by means of its fossil remains, they could trace the gradual evolution of life upon the earth from a few simple and lowly forms of organised beings in the earlier epochs, to the vast assemblage of living beings that people earth and sea to-day.

Dr. Woodward here introduced a series of lantern slides illustrating the fossils characterising the various geological horizons, and gave a description of the same.

In conclusion, he said that notwithstanding the undoubted fact that William Smith had attained to a very correct knowledge of the great series of the Secondary Rocks in England, he thought they might conclude that Smith had not time nor opportunity to make any very thorough investigation of the much larger series of the Palæozoic Rocks. Nor need this surprise them when they remembered that before 1830 not 100 miles of railways had been laid down; very few collieries or ironworks had been opened; whilst steam power factories were as yet undeveloped. Consequently, Smith's opportunities of studying the older rocks were extremely limited, as comparatively few artificial excavations were then in existence, whilst their exposed natural surfaces offered less opportunities to the collector of fossils than the very numerous quarries and the long escarpments of the Jurassic and Cretaceous series afforded. Nevertheless he did make considerable progress, and all that the vast army of geological workers had done since 1838 confirmed the accuracy of Smith's original conclusions as to the orderly succession of the rocks and the certainty of their identification by means of their contained organisms. He thought they might justly conclude that beneath the varied and picturesque aspect of Nature, a slow but orderly succession of physical changes of land and sea had ever been in progress; these had reacted upon and had doubtless influenced the regular succession of life on the earth for countless ages in which it had existed, before man himself appeared upon the scene in which (for good or ill) he was now taking so active a part as a factor of change in this our modern Utopia.

A hearty vote of thanks was accorded to Dr. Woodward for his lecture.

* Buried under hard tufa.

† Overwhelmed by showers of ashes.

THE ARCHITECTURAL ASSOCIATION SPRING VISITS:

II.—NEW OFFICES FOR THE UNITED KINGDOM PROVIDENT INSTITUTION AND FOR THE "MORNING POST."

THE second spring visit was held on Saturday, January 26, to these important new buildings, both of which are in the Strand. At the United Kingdom Provident Institution the members of the Architectural Association were received by the architect, Mr. H. T. Hare, who gave a great deal of information upon the design and construction of his work.

It may at once be said that London is the richer by the addition of such buildings as these, and especially that district which contains the famous Somerset House. A number of opportunities for fine things have been frittered away in this part of the Strand since the County Council improvements were first effected. Mr. Hare has grasped the essentials of his opportunity, and has, in addition to carrying out the Chambers tradition, produced a work which will add a considerable value to the interest of St. Clement Danes Church.

The façade occupies what may be considered as half the south segment of the widened part of the Strand, radiating from the church, and the effect is one which prompts the hope that the remaining segment on the south side will be similarly treated by the same or a sympathetic hand when the time arrives for its development. Portland stone is used in the Strand and Milton-street fronts. The principal feature of the former is a large engaged colonnade, embracing two stories of offices, which is recessed from the building line and terminated with plain rusticated masses.

The arched ground story with superimposed "order" is the usual combination of parts; but an important departure from custom is the large expanse of the two-storied roof. The visible side is of a Mansard type, having two steep slopes covered with a very pleasing Yorkshire stone slate. Some good sculpture is seen upon this façade, and much interesting detail, although, in a general sense, the scale may be said to be coarse.

The central space of the site is arranged to form the general office, which is circular in form and top lighted. The effect is one of some importance which, when finished, will have a good display of marbles. We are not impressed, however, with the heavily-moulded cippolino marble cornice, which is quite stone-like in its section. Various other marbles of a kindred colour are used in wall linings, architraves, and other features which will no doubt lend an air of prosperity to the frequenters of the Society's building. Messrs. Higgs & Hill are the contractors for the work, which is not being subjected to undue speed in construction.

At the next building visited a striking contrast in manner and method greets the attention. Here, all reverence for the tradition of Chambers is completely absent, and no regard paid to the characteristics of new surroundings.

The great Strand improvement loses force by reason of the erection of important works designed in a manner foreign to the local example. Here is a Parisian building fashioned completely in Norwegian granite—a most unwelcome combination of qualities, under the circumstances—which we do not understand the proprietors of the *Morning Post* or the London County Council authority sanctioning. As a French design the work is distinctly good, but we could have wished something English on an "island" site at the entrance to Aldwych.

Mr. Davies, of Messrs. Mewes & Davies, the architect of the building, was present, and gave much useful information. Sixteen months is the contract time for the work, but some extension will be given to meet the County Council demands for certain concrete retaining walls next the Aldwych subway. Some truly remarkable eccentricities of the London Building Act reveal themselves in some unnecessary and absurdly thick walls. It will be a great benefit to London building practice to have some consistent and common sense applied to its building laws—we say this without desiring to go to ferro-concrete extremes, a subject apart from our present contention.

Printing operations will be carried on in the basement, and the whole of the building will be used by the editors, managers, and staff, with the exception of the second and third floors, which will be let to the public as offices. The granite carving is of excellent workmanship, the general detail is well considered and tasteful.

Fifty Years Ago.

FROM THE *Builder* OF JANUARY 31, 1857.

THE RISE OF THE POWER OF TRADE UNIONS.

YOUR correspondent of last week makes some severe remarks on the conduct of trade unions. I am as averse to the principle on which those trade unions are conducted as your correspondent. But let me state, once for all, clearly and distinctly, the cause of these trade unions attaining such a formidable and threatening aspect as they do at present. Many of those who contribute their pence and shillings to support these unions do it not willingly, but grudgingly, not as a matter of choice, but of necessity. For instance, a man not belonging to the trade union applies to a master for employment: if the master employs him, and he refuses to join the society, a deputation is sent by the union to state that the society men refuse to work with him; or, in other words, they demand the master to discharge him: the master, to avoid a temporary inconvenience, discharges him. We hear much in the present day of the tyranny of capitalists and employers: those who live in glass houses should not throw stones. I speak, or rather write, impartially. As an individual I have suffered more from the tyranny of trade unions than I have from employers.

A STONEMASON.

*** In this matter half a century seems to have made little difference in the relation of trade unions to non-unionists.

Illustrations.

COMPETITION DESIGN FOR BIRMINGHAM COUNCIL HOUSE EXTENSION.

WE illustrate this week the design submitted by Mr. A. N. Prentice in this important competition. On some of the excellent qualities of this design we have already commented in our review of the competition.

The objects kept in view in the design are sufficiently explained in the following extracts from the Report submitted by the author in the first competition:—

"The main object of the planning of the scheme has been to adhere strictly to the instructions, both as regards the position of the various departments and the sizes of the accommodation stipulated in the Instructions to Architects, and to treat the whole in as direct and simple a manner as possible, with a view to the ultimate easy working of the whole.

After inspecting the site and the surroundings it has been thought that any elaborate architectural treatment would be out of place and superfluous, and that a simple and broad treatment of the elevations would be the best to suit the position and to harmonise with the existing Council offices.

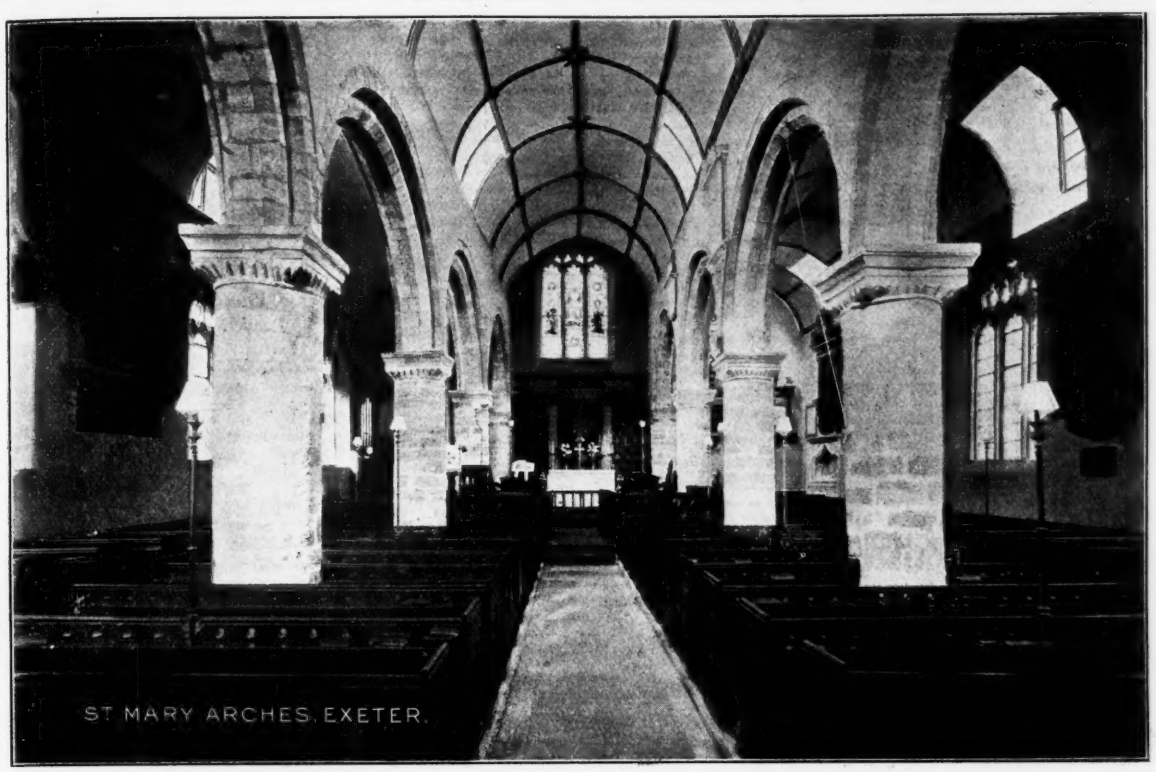
The Edmund-street frontage has been treated in this manner, and with a view to expressing the existence of the art gallery on the first floor.

The general floor level of the lower ground floor has been placed 2 ft. above the floor level of Margaret-street, at the lowest point; the reason for keeping this level up is to obtain a better light along the Congreve-street frontage.

The Gas Department.—The entrance to this department is in the centre of the Edmund-street frontage, and has a convenient entrance hall on the ground floor.

The general gas office has been placed in the centre of the site, entered directly from the entrance hall, and of easy access by the public. By choosing this position it has allowed the use of the external light on three sides, and, in addition to this, a domed glass roof has been placed in the centre between the art galleries above, which will ensure the whole being thoroughly well lit in every part. This domed light will give an appearance of height to the gas office, besides being useful for purposes of ventilation. . . .

The Art Galleries have been placed along the Edmund-street frontage and in the interior of the site over the gas office, and have been



arranged to afford easy circumlocution. The floor level has been arranged on the same level as the existing art galleries, and the two buildings have direct access to the other by means of the bridge, in the position indicated on the plan provided to competitors.

Emergency staircases have been provided in convenient situations, and these could be shut off by means of fireproof iron doors, as well as all other openings communicating with the various galleries. The print-room is provided with side light, and advantage is taken of the space over this room for the use of photographic dark-room.

The system of top lighting the galleries would be arranged in a similar manner to that adopted in the most successful galleries erected in this country.

A height of 17 ft. to the underside of the cornice has been allowed in the galleries, and 16 ft. in the water-colour room.

Storage accommodation for pictures and packing-cases will be found provided in the basement, together with covered space for unloading vans, and picture lift is arranged in close proximity.

Construction and Generally.—The external fronts of the building would be executed in Darley Dale stone, and the walls inside the site would be in brickwork, as requested in the conditions, and it is thought advisable to use glazed brickwork in the inner areas.

The general construction throughout would be of fire-resisting materials of the latest and most approved systems in use, and all steelwork in floors and walls would be protected with fire-resisting material. It is also intended to construct the roofs in steel and concrete, and the flats in a similar manner, covered with asphalt."

CHURCH OF ST. MARY ARCHES, EXETER.

THE illustrations of this church are from measured drawings by Mr. J. Hughan Shearer, of Exeter, who contributes an article on the history of the church which will be found on another page. A view of the interior, taken from a photograph, is subjoined.

THE ROYAL SANITARY INSTITUTE.

THE following members and associates have been elected January, 1907:

*J. Ayling, Brighton
G. H. Bell, Swansea
*P. S. Bennett, Ashford
W. Bentley, Bolton
R. B. E. Davison, Belfast
J. A. Dixon, Leeds
*F. J. Fearns, Acton, W.
D. E. Flinn, Dublin
T. P. Frank, Leeds
*E. J. Gibbard, Wimbledon
*S. G. Green, Maida Hill, W.
*W. Green, Accrington
W. Hollingworth, Toronto
*L. G. Hooper, Morice Town, Devonport
W. E. Knapman, Barry, Glam.
† ‡A. McKinna, Edinburgh
†R. H. Matthews, South Tottenham, N.
*N. Maunder, Tunbridge Wells
R. W. Menmuir, Woodstock, Cape Colony
Major J. A. Meredith, Windsor
*G. Mould, Thornton Heath
J. Owen, Brixton Hill, S.W.
*T. J. Pitre, Sholapur, Bombay Presidency, India
A. C. Rego, Amritsar, Punjab, India
J. Robertson, Birmingham
W. Scott-Deakin, Shrewsbury
*W. J. Stainton, Harringay
*J. L. Worssell, Kentish Town.

Associates.

†W. Bailey, Catford, S.E.
†S. J. H. Bareham, Clare, Suffolk.
†H. W. Bassett, Romford
†G. H. Bates, Todmorden
†J. W. Beaumont, Oakes, Lindley, Huddersfield
†E. C. Bond, Bedworth
†H. C. Bradford, Bristol
†J. W. Brown, Tooting
†W. E. Bullen, Highgate Hill, N.
†H. G. Chapman, Regent's Park, N.W.
†J. C. Christian, Hammersmith, W.
†P. C. Crabb, Stratford, E.
†Miss F. Cripps, Manchester
†G. G. Culmer, Faversham
†W. M. Cunningham, Westbourne Park, W.
†A. Dickinson, Southwick, Sussex
†T. Dinsdale, Garforth, near Leeds
†L. E. Edwards, Wood Green, N.
†W. H. Eley, Chelmsford
†E. W. Flint, Seven Kings, Essex
†L. Freeman, Guildford
†F. H. French, Worthing
†Miss G. E. Gomm, Stoke-under-Ham, Somerset
†P. B. Hall, Bloemfontein, Orange River Colony.
†J. Halliday, Keighley
†W. E. Harding, Reigate
†A. E. Harris, Portsmouth
†R. T. Hayes, Acton, W.
†H. F. Hill, Ware
‡Miss L. Hodgson, Clapham Common, S.W.
E. W. Hooper, East Grinstead
†F. E. Hughes, Turton, near Bolton
†W. Jolley, Southport
†D. J. Jones, Llanelly
‡Miss E. V. Kanthack, Kew
†E. H. Lawrence, Tulse Hill, S.W.
†T. H. Lighbody, Wealdstone
†W. H. Lord, Pretoria, Transvaal, S.A.
‡Miss K. Marshall, Kensington, W.
†C. Martin, Looe, Cornwall
†E. E. Milburn, North Shields
†Miss A. M. Miller, Leyton
†R. C. N. Newport, West Hendon, N.W.
†E. G. Oram, Balham, S.W.
†Miss M. Ostle, Blackburn
†T. Painter, Brownhills, near Walsall
†H. A. Pearce, Walthamstow
†J. B. Panks, Great Yarmouth
†G. F. Rampling, Sudbury, Suffolk
‡Miss M. Richardson, Newcastle-on-Tyne
§H. K. Roberts, Church Stretton
†G. Rogers, Watermoor, Cirencester, Glos.
†H. T. Rooke, Richmond
†E. H. Scorrer, Hull
†W. H. Scott, Northwood
†H. G. Sharp, Hessle, E. Yorkshire
†Miss M. E. Staples, Middlesbrough
†Miss G. E. Stevens, Southampton
†G. A. Sutherland, Putney, S.W.
†Miss M. Sutton, Great Harwood
†M. M. Thomas, Penydassin, Merthyr Tydfil
†H. W. Thurston, Leyton
†T. N. W. Watts, Henley-on-Thames
†R. White, Blackheath
†Miss J. C. Wienholt, Kensington, W.
†P. Wright, Southport
†J. Wyld, Clayton, Yorks.

* Marked thus have passed the Examination of the Institute in Sanitary Science as applied to Buildings and Public Works.

† Marked thus have passed the Examination of the Institute for Inspectors of Nuisances.

‡ Marked thus have passed the Examination of the Institute in Hygiene in its bearing on School Life (Practical Hygiene for School Teachers).

§ Marked thus have passed the Examination of the Institute for Inspectors of Meat and Other Foods.

THE T-SQUARE CLUB.—Owing to the illness of some of the intended performers at the Ladies' Night, the date of the entertainment has been unavoidably postponed until Tuesday, February 12.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Alderman Spicer, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend Fulham Borough Council 6,663*l.* for electric lighting; and Hampstead Borough Council 1,637*l.* for paving works. Sanction was also given to Battersea Borough Council to borrow 2,964*l.* for paving works.

Invention by an Official.—Permission was given to Mr. W. G. Shipwright to take out a patent for his invention of a rubber and metal union for taps and pipes.

Erection of Islington Sub-station.—It was agreed that the estimate of expenditure on capital account of 7,525*l.*, submitted by the Finance Committee, in respect of the erection of the Islington tramways sub-station, including incidental expenses, be approved; and that the Islington sub-station be erected without intervention of a contractor, and that the drawings, specification, and estimate of 6,700*l.* be referred to the Works Committee for that purpose.

Inadequate Supplies of Water at Fires.—The Fire Brigade Committee reported as follows:—

"We are informed that on the occasion of a fire in Patriot-square, Cambridge-road, E., on January 5, 1907, the supply of water obtainable from the fire-hydrants was very inadequate, the supply of water from one hydrant failing entirely as soon as a steam fire-engine was got to work at another hydrant. The water supply to the hydrants in question is drawn through a main only 3 in. in diameter, and we have given instructions for the facts to be brought to the notice of the Metropolitan Water Board.

On October 30, 1906, we drew attention to the inadequacy of the supply of water obtainable from the fire-hydrants in the vicinity of a fire which occurred at Victoria Park Wharf on September 21, 1906. We communicated the facts to the Metropolitan Water Board, who have informed us that the supply of water at the place in question is an excellent one for all the purposes of the Board, and that the mains from which the supply is drawn are ample for the Board's purposes. The Board also state that in all cases where the supply of water is sufficient for domestic purposes but insufficient for fire purposes they would be prepared to consider any proposals that the Council might have to offer as to the desirableness of increasing the size of the mains so as to add to their efficiency for fire purposes, and to carry out the necessary work provided that the Council agreed to pay the actual net cost of the work, and that, if the extension of the mains should effect a reasonable improvement in the Board's ordinary water supply, they would be prepared to share the cost with the Council in proportions to be agreed upon. We propose to consider the matter further, and to report the result in due course."

Improvement.—The Improvements Committee recommended, and it was agreed:—

"That the estimate of expenditure on capital account of 1,846*l.*, submitted by the Finance Committee in respect of the widening of Wickham-lane, Plumstead, as shown on the plan, be approved.

That, subject to the Woolwich Metropolitan

Borough Council contributing one-half of the net cost of the widening executed by the Council in Wickham-lane, expenditure not exceeding 1,846*l.* be sanctioned in respect of the widening of the thoroughfare."

Separate Valuation of Land.—The Local Government, Records, and Museums Committee reported as follows :—

"We have had under consideration the report of the Select Committee of the House of Commons, appointed to consider the Land Values Taxation, etc. (Scotland) Bill.

The main object of the Bill was to levy a new and additional rate, not exceeding 2*s.* in the pound, on the owners of land in burghs, the rate being fixed according to the yearly value (calculated at 4 per cent. on the capital value) of land apart from the buildings and erections upon it. The Select Committee heard a very large amount of evidence, and had before them, amongst other documents, the report of the Royal Commission on Local Taxation, and, although they were of opinion that the particular Bill referred to them should not be proceeded with, they stated their views at length upon the principle involved. Briefly, the conclusions arrived at were that the new standard of rating based upon the yearly value of land, apart from the buildings and improvements upon it, is sound, and would prove advantageous; that to set it up, by estimating the value of land apart from buildings, is practicable; and that in making the valuation regard must be had to all restrictions validly imposed on the land, and to recent expenditure in preparing it for use.

The report of the Select Committee is probably the most important document on the subject since the report on Urban Rating and Site Values made by five members of the Royal Commission on Local Taxation in 1901. The Select Committee agree with the views expressed in the report of 1901, that a land valuation is practicable; that the charge would be an equitable readjustment of local burdens; and that it would encourage building, facilitate industrial developments, and tend to assist in solving the housing problem; and they consider that the advantages are not dependent upon the question as to what proportion ought to be contributed by persons interested in the property. The Select Committee, however, go much further in their report. The minority report of the Royal Commission above referred to recommended that a small rate, limited to expenditure tending to increase the value of urban land, should be imposed on site values; whereas the Select Committee rejected the Scotch Bill on the ground, *inter alia*, that land values are not taken as the sole basis of rating, and recommended the introduction of a measure making provision for the valuation of land, apart from the buildings and improvements upon it.

It appears to be not unlikely that legislation will be introduced on the lines recommended by the Select Committee. We are of opinion that such legislation should not be restricted to Scotland, but should be extended to England and Wales, and we propose that the Council should so inform His Majesty's Government. We have given instructions for copies of the report of the Select Committee to be sent to members, and we recommend the Council to pass the following resolutions :—(*a*) That His Majesty's Government be informed that, in the opinion of the Council, any legislation which may be introduced to provide for a separate valuation of land, as recommended by the Select Committee of the House of Commons upon the Land Values Taxation (Scotland) Bill, 1906, should be extended to England and Wales. (*b*) That a copy of the foregoing resolution be sent to the President of the Local Government Board."

The consideration of the matter was deferred.

Main Drainage Extension—Northern Low-level Sewer No. 2, sect. 3.—The Main Drainage Committee reported as follows :—

"The scheme submitted by us on December 5, 1899, for the extension of the main drainage system, included the construction of a new sewer, the northern low-level sewer No. 2, between the middle and northern low-level sewers. On July 26, 1904, an estimate of 91,500*l.* was approved in respect of the construction by W. Kennedy, Ltd., of section 1 of the sewer, comprising the portion, about one and a half miles in length, between the River Lee near Bow Bridge and the western side of the Regent's Canal at Limehouse, and this section is now nearly completed. An estimate of 2,000*l.* was approved on April 4, 1905, for preliminary expenditure in respect of the portion of the sewer west of Hyde Park-corner; and on August 1, 1905, an estimate of 119,500*l.* was approved for the construction, by the Works Committee, of the portion, over two miles long, west of the Counter's-creek sewer. In connexion with the portion of the northern low-level sewer to which our recommendation relates, an estimate of 1,000*l.* was approved on July 26, 1904, for preliminary expenditure, so that, up to the present time, estimates, amounting in all to 214,000*l.*, have been approved for the construction of various portions of the sewer.

The third section of the sewer, between Stepney and Trafalgar-square, which is to be constructed mainly of ironwork, and will vary in size from 8 ft. 9 in. to 7 ft. 6 in. in diameter, is about four miles long, and the cost of the work is estimated at 297,800*l.*, but none of this expenditure will be incurred during the current financial year. As the sewer will, in its course, pass to the south side of St. Paul's Cathedral, we have been in communication with the representatives of the Dean and Chapter with regard to the manner in which the construction is to be carried out at this point, and they are satisfied with the proposed arrangements. It is anticipated that no work will be executed in the vicinity of the cathedral before the end of the year.

We think that the work should be done without the intervention of a contractor, and the Works Committee have expressed their willingness to undertake it at the amount of the estimate. We have forwarded to the Finance Committee an estimate of 304,000*l.*, which includes 6,200*l.* in respect of general incidental expenses. A cartoon plan, showing by green colour the portion of the sewer in question, has been hung in the Council Chamber, and we recommend :—(*a*) That the estimate of expenditure on capital account of 304,000*l.*, submitted by the Finance Committee, for the construction of the portion of the northern low-level sewer, No. 2, between Stepney and Trafalgar-square, and for general incidental expenses, be approved. (*b*) That expenditure on capital account not exceeding 297,800*l.* be sanctioned for the construction of the portion of the northern low-level sewer, No. 2, between Stepney and Trafalgar-square; that the work be done without the intervention of a contractor; and that the drawings, specification, and estimate of 297,800*l.* be referred to the Works Committee for that purpose. (*c*) That expenditure on capital account not exceeding 6,200*l.* be sanctioned for general incidental expenses, including the cost of the employment of resident and assistant engineers, clerks of works, and inspectors required in connexion with the supervision of the work."

The consideration of the matter was adjourned.

Sanitary Officers.—The Public Health Committee reported as follows :

"We have from time to time presented returns containing statistics relating to the sanitary inspectors employed in the City of London and the several metropolitan boroughs, the last return being presented on June 28, 1904. The medical officer has prepared a return, in continuation of those previously presented, dealing with the sanitary inspectors employed in London during the year 1906, together with information as to population, tenement houses, and houses let in lodgings. We have ordered a copy of the return to be sent to every member of the Council.

The number of inspectors employed in London in each of the years dealt with in the returns was as follows :—

Year.	Number of Sanitary Inspectors in the Whole of London.
1893	188*a*
1894	219*a*
1895	228*a*
1898	256*a*
1901	275
1903	301*b*
1904	313*b*
1906	319

(*a*) Excluding inspectors employed in districts mentioned in Schedule C of the Metropolis Management Act.

(*b*) Including one inspector who acted as chief clerk.

It will be noted that each return shows an increase in the number of inspectors, and that since 1893 the number of inspectors has increased by nearly 70 per cent., and that on the figures of the 1901 census there is one sanitary inspector to every 1,792 inhabited houses and to every 14,221 persons. Of this average population more than half or 7,679 persons live in tenements of less than five rooms, and of these persons 2,276 are living more than two in a room. The total number of houses let in lodgings on the registers of the sanitary authorities is 21,510, giving an average for each sanitary inspector of sixty-seven. In 1904 the number of sanitary inspectors employed in each of the metropolitan boroughs was ascertained, and comparison between these numbers and those obtaining in 1906 may thus be made :—

Metropolitan Boroughs.	Number of Sanitary Inspectors.		Increase (+) or Decrease (−) in 1906 compared with 1904.
	1904.	1906.	
Battersea	13	13	—
Bermondsey	9	9	—
Bethnal Green	10	10	—
Camberwell	14	13	− 1
Chelsea	4	4	—
Deptford	8	7	− 1
Finsbury	10	11	+ 1
Fulham	7	7	—
Greenwich	6	5	− 1
Hackney	17	17	—
Hammersmith	9	9	—
Hampstead	7	7	—
Holborn	4	4	—
Islington	20	22	+ 2
Kensington	13	13	—
Lambeth	13	15	+ 2
Lewisham	10	10	—
Paddington	12	12	—
Poplar	8	9	+ 1
St. Marylebone	8	9	+ 1
St. Pancras	16	17	+ 1
Shoreditch	6	6	—
Southwark	16	16	—
Stepney	18	18	—
Stoke Newington	3	3	—
Wandsworth	11	12	+ 1
Westminster, City of	12	12	—
Woolwich	10	10	—
City of London	19	19	—
London	313	319	+ 6

Of the 319 inspectors now employed in London thirty-eight are women, as compared with twenty-eight in 1904. The increase in the total number of inspectors in London since the date of the last return is therefore largely due to the appointment of women inspectors, who are now employed in all the London districts except Bermondsey, Deptford, Greenwich, Hammersmith, Shoreditch, Stepney, and Stoke Newington. We recommend that the report by the medical officer on the sanitary staffs of the City of London and the metropolitan boroughs be placed on sale, and that copies be sent to the Local Government Board and the several sanitary authorities."

The Works Committee.—The Works Committee submitted statements of works completed during the half-year ended September 30, 1906. In statement I. are included the accounts for fourteen works, in respect of which complete specifications and bills of quantities have been prepared. All these works were practically completed by September 30, 1906, and any slight expenditure incurred after that date has been brought into account. The statement contains all the works completed in the half-year, and, although the cost of four works has slightly exceeded the final certificate, the net balance of cost below certificated value is 14,255*l.* 3*s.* They attribute the excess of cost over final certificate for works Nos. 1 to 4 mainly to the fact that the joiner's work, which is excellent in quality, cost more than the provision in the estimate therefor. Statement III. shows the results of the execution of jobbing works during the year 1905-6 and part of 1906-7, the cost being, for works not previously reported, 2,883*l.* 14*s.* 9*d.* below schedule value. The total cost of the works included in the statements now presented does not represent the whole turnover of the department, because much of the expenditure on these works occurred previous to the half-year in question, while, on the other hand, much of the expenditure during the six months was upon works which are still unfinished. The expenditure on works executed by the department during the half-year was approximately 265,000*l.* The number of estimated works referred to the Committee for execution, and not yet included in the half-yearly statements of completed works submitted to the Council, is twenty-nine, representing an estimated expenditure of approximately 1,508,000*l.* In addition, works to the estimated value of about 28,500*l.*, and consisting mainly of urgent alterations at schools, etc., are in course of execution of the basis of actual cost. They do not deem it advisable, however, that works should be referred to them without any basis for comparison of cost and value, and a schedule of prices was in course of preparation on which the value of alterations at schools, etc., will, for the future, be based. As required, they report that, so far as can at present be foreseen, the cost of each work in progress will not exceed the accepted estimate. They draw attention to the financial results of the works executed by them since the existing constitution of, and reference to, the Works Committee was settled in March, 1902. From that date up to September 30, 1906, they have reported the cost and value of 110 completed estimated works commenced under their supervision. The final certificates of these works totalled 1,233,915*l.* 6*s.* 7*d.*, and the cost amounted to 1,099,648*l.* 15*s.* 9*d.*, a balance of cost below final certificates of 134,266*l.* 10*s.* 10*d.*, or over 10 per cent. The difference of cost below the amount voted by the Council was considerably more. The accounts of jobbing works executed since March, 1902, show a balance of cost below schedule value of 17,610*l.* 19*s.* 10*d.*, or 7 per cent. They were sure that the Council would be gratified to learn the success of the department under the present system of management, and they desired to place on record their opinion that much of the success was due to the valuable services of Mr. G. W. Humphreys, the manager of works, and to the cordial assistance rendered by the staff of the department. They considered that the figures now reported afford, apart from other considerations, ample justification for the policy of the Council with regard to the execution of works by direct employment of labour. The excess of cost over final certificate which was incurred prior to 1902, while the department was passing through the experimental stage, was more than counterbalanced by the results reported.

General Line of Buildings on the North Side of Pentonville-road.—The Building Act Committee reported as follows :—

"On June 21, 1906, the superintending architect of metropolitan buildings defined, under sect. 23 of the London Building Act, 1894, the general line of buildings on the northern side of Pentonville-road. Mr. T. Lilley and Messrs. Lilley & Skinner, Ltd., the owners of the premises Nos. 190 to 208 (even numbers only) inclusive, Pentonville-road, appealed against the certificate. The appeal was heard on August 1, 1906, and on August 2, 1906, the Tribunal of Appeal made an order varying the certificate and ordering the Council to pay to the appellants the sum of 60*l.* and costs. The Tribunal intimated their

willingness to state a case for the opinion of the High Court on the question of costs or any other point of law the Council might raise. We are advised that questions of law are involved upon which it is very desirable to have the opinion of the High Court, and we therefore recommend that the solicitor do take all necessary steps to obtain the statement by the Tribunal of Appeal of a special case for opinion of the High Court in the matter of the order of the Tribunal varying the certificate of the superintending architect defining the general line of buildings on the north side of Pentonville-road; and to obtain the decision of the High Court in the matter."

Formation of Streets on the Grove Hall Estate, Bow.—The Building Act Committee reported as follows :—

"We have had under consideration an application for sanction to the formation of streets for carriage traffic upon the Grove Hall Estate, Fairfield-road, Bow. Sect. 9 of the London Building Act, 1894, provides that unless the Council gives notice of an order in connexion with such an application within two months after the receipt of the application it shall be deemed that sanction has been given thereto. As the period of two months expired on January 28, 907, we, acting on behalf of the Council, made the order set out in the following recommendation in connexion with the application in question. We therefore recommend that the following order, made by the Building Act Committee on behalf of the Council, be confirmed :—That an order be sealed (in duplicate) and issued to Mr. E. Evans, sanctioning the formation or laying out of new streets for carriage traffic upon the Grove Hall Estate, Fairfield-road, Bow."

Sir John McDougall moved to refer the recommendation back in order that the Parks Committee might see whether it was not possible to preserve the estate as an open space.

Mr. Dolman seconded the amendment.

Mr. S. Sankey remarked that the question had been before the Parks Committee on several occasions. The lowest price at which they could purchase the land was 35,000*l.*, and his Committee thought it was useless to bring such a proposition before the Council.

The amendment was negatived, and the recommendation of the Committee agreed to.

The Council soon afterwards adjourned.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses :—

Lines of Frontages and Projections.

Battersea.†—A one-story shop in front of No. 399, Battersea-park-road, Battersea, to abut also upon Culvert-road (Messrs. J. A. J. Woodward & Sons for Mr. E. H. Disney).—Consent.

Battersea.—Erection of a granary building on the southern side of High-street, Battersea, westward of the "Bricklayers Arms" public-house (Mr. J. H. May for Mr. A. F. Hall).—Consent.

Chelsea.—That the application of Mr. E. Geldart for the Rev. J. P. Thompson, for an extension of the periods within which the erection of an addition at the western end of Christ Church, Christ Church-street, Chelsea, was required to be commenced and completed, be granted.—Consent.

Clapham.—Two houses on the site of No. 41, Nightingale-lane, Clapham (Mr. R. L. Freeman for Mr. D. S. Whitcher).—Consent.

Lewisham.—Retention of a urinal erected in the yard of the "Two Brewers" public-house on the western side of Perry-hill, Catford (Mr. W. J. Janes for Mr. E. J. Janes and Messrs. Wooding & Cole).—Consent.

Marylebone, East.—That the application of Sir Arthur Blomfield & Sons for an extension of the period within which the erection of residential flats, with bay windows, upon the site of Nos. 79 to 105 (odd numbers only) inclusive, Park-road, Regent's-park, was required to be completed, be granted.—Consent.

Paddington, South.—Retention of enclosures to the sides of an existing porch in front of No. 77, Gloucester-terrace, Paddington (Mr. W. Giles for Miss F. A. Drew).—Consent.

Paddington, South.—The retention of an addition over the portico to No. 38, Gloucester-square, Paddington (Mr. M. A. Spielmann).—Consent.

Strand.—An iron and glass shelter in front of the main entrance to the "Playhouse" Theatre, Northumberland-avenue, Strand (Messrs. Blow & Billerey for Mr. Cyril Maude).—Consent.

Strand.—A projecting illuminated sign over the shelter at the main entrance to the "Playhouse" Theatre, Northumberland-avenue, Strand (Mr. E. Wingfield-Bowles for Mr. Cyril Maude).—Consent.

Strand.—A projecting oriel window in front of No. 106, Jermyn-street, Strand (Messrs. Treadwell & Martin for Mr. F. C. Wall).—Consent.

Hampstead.—The retention of an iron and glass covered way at North Hall, Mortimer-road, Kilburn (Mr. T. Stevens for Mr. A. Blacklock).—Refused.

Width of Way.

Bethnal-green, South-west.—Additions in front of Nos. 90, 92, 96, 98, and 100, Brady-street, Whitechapel, at less than the prescribed distance from the centre of the roadway of the street (Mr. J. Holmes).—Refused.

Width of Way and Lines of Frontage.

Peckham.—A building on the site of No. 19, Wagner-street, Peckham, at less than the prescribed distance from the centre of the roadway of the street (Mr. J. Webster for Mr. T. O. King).—Consent.

Islington, West.—The erection of a building on the southern side of George's-road, Islington, to abut also upon the eastern side of Adam's-place, at less than the prescribed distance from the centre of the roadway of Adam's-place (Mr. G. H. Lovegrove for Mr. J. Pinchbeck).—Refused.

Width of Way and Construction.

Camberwell, North.—An external iron gangway and an external iron staircase at the premises of Messrs. E. Roberts, Ltd., No. 264, Camberwell-road, Camberwell (Messrs. Weatherall & Green for Captain Harcourt Wood).—Consent.

Lines of Frontage and Space at Rear.

Kensington, South.†—Buildings on the north-western side of a footway leading from Lexham-gardens to Cornwall-gardens, Kensington, with an irregular open space at the rear (Mr. D. Young).—Consent.

Woolwich.—A deviation from the plans approved in respect of the erection of houses with bay windows on the eastern and western sides of Belford-grove, Artillery-place, Woolwich, as far as relates to the erection of an additional house at the north-western end of Belford-grove (Mr. F. C. Henesy).—Consent.

Width of Way and Deviation from Certified Plans.

Holborn.—That the application of Mr. A. B. Brown for an extension of the period within which the erection of buildings on the site of Nos. 8 to 14, Wild-court, Holborn, was required to be completed, be granted.—Consent.

Formation of Streets.

Hackney, South.—That an order be issued to Messrs. Hodson & Whitehead sanctioning the formation or laying out of a new street to be used partly for foot traffic only, and partly for carriage traffic, in continuation southward of Rivaz-place, Chatham-place, Hackney, and connecting Rivaz-place with Retreat-place (Messrs. Hodson & Rowlandson and Messrs. Fielder, Jones, & Fielder).—Consent.

Fulham.—That the Council, on the application of Mr. A. Blackford, do extend the time within which the roadway of a proposed street for carriage traffic, to lead from Fulham Palace-road to Colehill-lane, Fulham, was to have been clearly defined and thrown open; and do also sanction a deviation from the plan approved for the formation of the said street, so far as relates to (*a*) an alteration in the levels of the proposed streets, and (*b*) the substitution of a splayed for a rounded corner at the angle of the street and on the side abutting upon the ornamental garden.—Consent.

Height of Buildings.

Fulham.—Buildings abutting upon a proposed street to lead from Fulham Palace-road to Colehill-lane, Fulham, and exceeding in height the width of the street (Mr. A. Blackford).—Consent.

The recommendations marked † are contrary to the views of the local authorities.

Architectural Societies.

THE EDINBURGH ARCHITECTURAL ASSOCIATION.—The Association, desiring to commemorate its jubilee year, has arranged to hold an exhibition in the rooms of the Royal Scottish Academy, Edinburgh, during July and August of this year. The exhibition will be limited to work executed in the course of the past fifty years by Scottish architects, with the addition of such old or special work as the committee may consider of sufficient interest. An interesting incident in connection with the exhibition is the forthcoming visit of the Royal Institute of British Architects during the period of the exhibition. It is desired to include in the exhibition photographs and drawings of work that has been completed, and the committee will have discretionary powers to admit exhibits of the applied arts, as designed and controlled by the architect, if available floor space permits. Architects and others who have photographs and drawings which they consider of sufficient interest to be included in the exhibition are invited to communicate with the Exhibition Secretary, Mr. John McIntyre, 28, North Bridge-street, Edinburgh, who will furnish further particulars.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—At the rooms of this Society, on the 24th ult., Mr. E. Nichols read a paper on "Gothic Sculpture as Applied by the late William Burges," Mr. H. S. Chorley, President, in the chair. The lecturer said :—"I have great pleasure in coming to Leeds to talk about Wm. Burges, because were I to give this lecture to a London audience they might ask what had he done that we can see.* I should tell them to go to Cork or Cardiff; whereas, here in Leeds, Studley Royal Chapel and Skelton Church are within easy reach. The Memorial Chapel at Studley Royal suffers, I think, from being too near to Fountains Abbey; what is left of the Abbey is so grand and reposeful, while Studley Royal Chapel seems too small for the amount of over-decorated detail. Skelton Church stands alone; there nothing is forgotten, even to the holy well in the churchyard. Burges loved these things—detail, animals, and colour. He said in a paper on the mural paintings of Charlgroove Church, Oxford, 'The interior of every old building invariably glowed with richest gold and colour, and every village church was a Sainte Chapelle or a St. Stephen's, Westminster, according to the general run of antiquaries.' Thus he wrote to the Scciety of Antiquaries in 1861. I have never been able to make up my mind on the subject of painted sculpture; the South Kensington authorities have recently added some carved and painted Gothic spandrils, which are splendid and most effective, but time I feel has much to do with it. My slides are mostly of animals. Mr. Burges gave to the British Museum an ivory dagger handle in the form of a lion's head, which is now in the Assyrian Gallery. I have a cast of it with me; this small lion's head and the Assyrian winged bulls appear to have inspired him in his treatment of animals. He never perpetrated a Gothic lion; he did many lions, but always of an Assyrian character; for instance, the four Evangelistic Emblems on a ground of gold mosaic surrounding the great rose window of Cork Cathedral are distinctly Assyrian or rather Babylonic. Cork Cathedral was his *magnum opus*, and it was barely completed when he died twenty-five years ago. The central doorway, with a figure of the Bridegroom between the five wise virgins and the five foolish virgins, is a most original and daring treatment. Of all the Gothic revivalists, Burges was the only man who got humour into his sculpture, and surely there was a strong sense of humour in Gothic. I do not mean the comic or merely grotesque. Take, for instance, the large gargoyles on Cork Cathedral: 'Chastity Subduing Lust,' 'Faith Piercing the Eyes of Idolatry,' 'Pride and Humility,' 'Avarice.' In Burges's own house he had a grammar chimney piece, where all the parts of speech were carved: Noun, Verb, Adverb, and all the rest. All the slides I am showing to-night are taken from the original models made by my father, the late Thomas Nichols, with the exception of those made from the drawings, etc. I have a few of the architect's original sketches, and you can see in the actual working out by the sculptor how wonderfully the two men worked together in perfect sympathy and accord."

BRADFORD SOCIETY OF ARCHITECTS AND SURVEYORS.—The annual dinner of this Society was held at the Great Northern Victoria Hotel, Bradford, on Friday, the 25th ult. After the usual loyal toasts, "The City and Trade of Bradford" was proposed by Mr. Charles Gott, and responded to by Alderman David Wade, who referred to the ever-increasing rates and the heavy burden on property owners. The President (Mr. Charles E. Milnes), in his remarks, alluded to the growing competition amongst architects—largely owing to the training obtainable by youths in technical colleges—and strongly advocated that architects should use more discretion, and limit the number of pupils in their offices, as one means of checking the overcrowding. He further complained of the intrusion of county and municipal architects, and last, but not least, to the growth of architectural departments attached to large industrial concerns.

* The lecturer's supposition that an audience of London architects would have been ignorant of Burges's work is rather amusing.—ED.

Allusion was also made to the inroads of the speculative builder, who to-day, he said, was not merely content with erecting terrace houses, but must needs introduce his hideous conceptions into the best residential suburban districts. He pointed out that all this was seriously interfering with the work of independent practitioners, and had a detrimental effect in putting out of employment many skilful professional workers. He trusted that the Architects Registration Bill would soon be placed on the statute-book, as likely not only to be of the greatest advantage to the profession, but to the general public. The proceedings closed with the toast of "The Secretary," responded to by Mr. A. G. Adkin.

Engineering Societies.

THE JUNIOR INSTITUTION OF ENGINEERS.—With the permission of the President of the Royal Naval College, Greenwich, Admiral Sir A. D. Fanshawe, K.C.B., and the assistance of Dr. James A. Ewing, F.R.S., Director of Naval Education, upwards of 100 members of the Junior Institution of Engineers, on Saturday afternoon, January 19, visited the College and precincts. They were received in the Painted Hall by Professor J. B. Henderson, D.Sc., Mr. Henry F. V. Negus (Secretary to the College), and Hon. Lieut. Thos. Pratt, R.N. (Curator of Museum). After seeing the notable collection of naval pictures, etc., there, they were shown over the chapel and museum. Proceeding to the new engineering laboratories they were met by Dr. Ewing, Vice-President of the Institution. All the apparatus, etc., was on view, including that used to demonstrate Dr. Hele-Shaw's "Stream Lines," shown by Mr. John Smith. The laboratory is equipped on research lines, and not for elementary teaching, since the engineering students have had a five years' course at Keyham College and Devonport Dockyard, on the "sandwich" system, before going to Greenwich. The course extends to one year for the average student, and to three years for the best students, who are destined later for expert work at the Admiralty or dockyards. The equipment of the laboratory comprises a 2,000-h.p. triple expansion steam-engine, ex H.M.S. *Rattlesnake*; a 45-h.p. Bellis engine and Siemens dynamo; a 45-h.p. Parsons turbine dynamo; a 30-h.p. de Laval turbine dynamo; a 15-h.p. Diesel oil-engine; a 9-h.p. Crossley gas-engine; 12-h.p. Thornycroft petrol-engine and Siemens' dynamo; a small Hornsby oil-engine; a 10-h.p. air-refrigerating plant; a three-stage torpedo air compressor; an 18-in. torpedo; a hydraulic pumping-engine; two hydraulic motors; a Babcock & Wilcox water-tube boiler; superheater, separately fired; a water-softening plant; a White-Forster boiler with oil fuel; a 100-ton and 5-ton Wicksteed testing machine; a complete Zeiss apparatus for the study of the microstructure of metals; a well-equipped workshop for making and repairing apparatus; a good equipment of measuring apparatus of all kinds used in experimental work. At the conclusion of the visit the party were entertained to tea by Dr. Ewing, and, on the proposal of Mr. Eade, member of the Council, seconded by [illegible] H. S. Hele-Shaw, F.R.S., a vote of thanks was tendered for all that had been done for the reception of the Institution that afternoon.

Competitions.

LIBRARY AND MUSEUM, PLYMOUTH.—Plans for the new free library and museum for Plymouth were finally selected on the 28th ult. by the Free Library Committee and the Museum and Art Gallery Committee, on the advice of Mr. Henry T. Hare, F.R.I.B.A. The competition was confined to local architects, and in all twenty designs were submitted. Mr. Hare's final award was as under:—1st, Messrs. Thornley & Rooke, The Crescent; 2nd, Mr. J. Leighton Fouracre, Garden-street; 3rd, Mr. John H. Vincent, Garden-street; 4th, Mr. B. Priestly Shires, Old Town-chambers. The first named will, therefore, have the carrying out of the work. The winning scheme is designed to fill in the entire length of available frontage to Tavistock-road at present vacant with the proposed new buildings, screening as far as possible the returning walls of the existing shops in that thoroughfare. The library is provided with a central entrance, from which access is gained to the borrowers' counter, which is upwards of 65 ft. in length, and provided with the usual indicators. On the right, upon entering the entrance-hall, will be found the general reading and newspaper room, 57 ft. by 42 ft., possessing not only cross-ventilation from Tavistock-road and Tavistock-place, but also a certain amount of top light. The room is also in direct communication with the lending library, and is supervised by the porter from his office. On the left-hand side of the hall will be found the lecture-room, 41 ft. by 30 ft., which faces Tavistock-road, and has an emergency exit direct to the street, the exit being also in touch with a lecturer's retiring-room, lavatory, etc. There is also a magazine-room, 39 ft. square, amply lighted from Tavistock-place, as well as top lighted. The lending library provides accommodation for 26,900 volumes, and has a separate staff entrance, approached from Tavistock-place. A stone staircase leads to the first floor, where will be found allocated the local collection-room and reference library, the sizes being respectively 41 ft. by 30 ft. and 55 ft. by 43 ft. These rooms are lighted from both sides of the wall, through ventilation again being attained, and both are top lighted. On this floor also is situate the librarian's room, 25 ft. by 18 ft., with strong-room accommodation attached. The stack-room gives accommodation for 26,000 volumes, and in close connexion with it will be found the catalogue-room, store, and binding rooms. The whole being connected with the ground floor by means of a special staff staircase. In the basement are the usual book stores, general stores, packing-room, and heating cellar. The basement is connected with the rest of the building both by means of a staff staircase as well as a book lift. A separate entrance is also provided for large packages of goods, etc. The museum has an entrance-hall, about 45 ft. square. It is top lighted, and has a gallery running round the four sides, which forms part of an arched arcade. There is a stone staircase at the farther end of the hall. On each side of the main entrance will be found cataloguing and cloak rooms. On the ground floor are two galleries, 80 ft. by 30 ft., and over these picture galleries of a similar size, top lighted. Provision has been made for two large galleries on each floor as regards future extension, and so arranged that the public will be able, when they are built, to traverse the rooms without crossing the main entrance. A staff staircase and goods entrance, with lift in connexion therewith, are provided in Tavistock-place, and the workrooms are in close connexion with them. In the basement is a lecture-hall, accommodating some 300 people, which can be approached from Tavistock-road, as far as the public are concerned, without entering the museum, and there is also an emergency exit in connexion with the lecture-hall to Tavistock-place, which, again, can be utilised without traversing the museum entrance-hall. A laboratory is in the basement for the curator's use. It is at the platform end of the lecture-hall, and it will be available for science demonstrations, etc. As regards the elevation to Tavistock-road, it has been felt desirable by the architects to carry both the museum and library through at one continuous level, so as to obtain the architectural composition asked for by the assessor in the instructions to the competitors. The acute slope of the street has, however, entailed the library windows being introduced at some different levels to those of the museum. It is at present proposed to face a large portion of the building with local limestone, the dressings and the moulding work generally being in Portland stone. The style of the architecture may perhaps be best described as a simple treatment of English Renaissance. The total cost of the scheme as submitted by the architects is 25,000*l*., viz., 13,000*l*. for the library, and 12,000*l*. for the museum and art gallery.—*Western Morning News*.

SCHOOL, NEWARK.—A special meeting of the Newark Education Committee was held recently under the Chairmanship of Councillor L. Priestley, J.P., at which plans for the proposed new Council school, to accommodate 600 children, which is to be built in Barnby-lane, were accepted. The Chairman said that the Building Committee had invited six firms of architects to compete for the work, and had considered all the plans sent in with the assessor, Mr. H. T. Buckland, Architect to the Birmingham Education Committee, and had decided to recommend the acceptance of a set of plans numbered "15." This recommendation was adopted, and, the sealed packet being opened, it was found that the architects whose plans had been accepted were Messrs. Mallows & Grocock, of Bedford.

BOOK RECEIVED.

NEW MAP OF METROPOLITAN RAILWAYS AND IMPROVEMENTS. (E. Stanford. 1s. 6d. in sheet; 3s. 6d. in case.)

Correspondence.

"TREATMENT OF CHURCH WINDOWS."

SIR,—I assume that your correspondent, "W. J. B.," in speaking of uncusped tracery as an unusual feature, does not consider the numerous first Pointed examples of this treatment as sufficiently developed to bring them into the category of tracery proper.

Be this as it may, there are not a few examples in which cusps were intentionally omitted, both in Scotch second Pointed and very late English work (as Burford Priory Chapel, Oxfordshire). At St. Eustache in Paris there is a typical example of the same thing.

The feature has been reproduced in modern work with some frequency, an elaborate example being the design with which Mr. H. Reid Hide won the Royal Academy Gold Medal in 1901.

H. S. GOODHART-RENDEL.

DUTIES OF CLERK OF WORKS: A SUGGESTION.

SIR,—I am very pleased to see the various views of your correspondents, following the insertion of "Notes by a Clerk of Works," because it is obvious to me that in this progressive age in building construction, and competition being keener than ever, the building world lacks *a definite list of duties* to be carried out by the clerk of works.

A thoroughly competent and smart clerk of works should first have had a good practical training at the bench and on buildings, also in the offices of a contractor, and following this should have acted as foreman. This latter position would then help him to appreciate the difficulties encountered by the foreman, who has always appreciated assistance as far as my experience goes.

But I think the architects should give this important matter great consideration.

It is useless drawing exquisite designs, and preparing drawings full of detail, if the representative of the architect (the clerk of works) is not fully qualified to get the structure in accordance with them. And this leads me to say that although it might be well for the clerk of works to be the servant of the building owner, I certainly think the architect, as adviser to the building owner, should very strongly emphasise the fact that a man who is so well up in all trades, and so full of practical experience as to be able to represent him on the building and see it properly carried out, is certainly *worth a much better salary* than the amounts one so often sees advertised. This would greatly lessen the work of the architect and save his time during visits to the job, and I think we should then hear much less of the "inspector."

Also having had experience in the offices of a contractor, the "clerk of works" will be able to very considerably assist the surveyor in adjusting the variations, especially if he has been supplied with a copy of the quantities, and for this purpose it will not be necessary for the prices to appear.

I do not think the question of letter-writing is a very important one, as I have always tried to settle matters on the job with the contractor's foreman, and few letters need writing, but rather than the foreman should think me at all overbearing, or too exacting, I have always invited him to refer any matter in dispute to the contractor, at the same time putting my views before the architect, and so leave the settling to them, and often prevent ill-feeling, as it certainly is in the interests of all concerned that good relations should exist.

I hope to see this question discussed by the Royal Institute of British Architects.

ROBERT H. REED.

SIRAPITE.

SIR,—In your recent issue, page 61, reporting a discussion on Mr. Sheffield's paper read before the Architectural Association, certain remarks

appeared with reference to papering on Sirapite plaster. I fully agree with some of the speakers that Sirapite (and, I may add, every plaster) should be dry before the paper is put on; and not only the plaster, but the wall behind it. In the instructions for using Sirapite that are issued it is always recommended "that the work should be thoroughly dry before being decorated upon." I submit that it is hardly fair to blame a material when the manufacturer's reasonable instructions are not carried out.

Mr. Wonnacott's complaint (that gold paper is turned black by damp Sirapite plaster) is quite new to me. I have made Sirapite plaster for sixteen years, and no case of the kind has been brought to my notice before. The so-called "gold" would probably contain a large proportion of copper, and the sulphur from a coke fire in or near the building, or even the sulphur which frequently exists in the atmosphere, would, in the presence of moisture, be quite sufficient to turn the copper black; and I think it should be clearly established that the plaster is really to blame before the proposition is accepted. With regard to Mr. Voysey's remarks, the Sirapite sold for first coat work is somewhat alkaline, and in addition to this the plasterers usually (and quite rightly) add lime putty in the mixing. The material sold for setting is not, however, alkaline, and if this is used without lime putty no alkalinity can come from it.

There is never any trouble with decoration on Sirapite plaster when on lathwork, on plaster slabs, or on concrete floors or partitions. With the latter it is recognised that the work must be fairly dry before the plaster is put on, whilst wit the lat and slab work it quickly dries out, and when the surface appears dry the w ole *is* dry enough for decoration.

With brickwork it is quite different. The bricks are usually soaked with water, to say nothing of the saturation they often get from rain. Notwithstanding this, the walls are hurriedly plastered, and the water has to find its way out where there is the least resistance to its passage, which is more often than not through the face of the plaster.

In such cases it is not always easy to know when the work is dry enough to decorate upon. A few drying days and the face of the plaster will appear dry, even though there may remain a great deal of water in the wall, but the same wall will again appear wet if the atmosphere becomes charged with moisture. A long experience has shown that even on brickwork there is never any trouble with decorating on Sirapite plaster unless the walls are unusually wet; and when trouble does arise it would appear that it is invariably caused by moisture from the brickwork.

Dr. Gerald T. Moody, of the City and Guilds Central Technical College, South Kensington, has recently examined a brick taken from a London merchant's stock, and his report is as follows—

"The brick was exhausted with water, and yielded slightly more than 1 per cent. of matter soluble in water. This soluble material was found on examination to consist mainly of gypsum; but it contained appreciable quantities, aggregating over 10 per cent., of iron, calcium chloride, sodium sulphate, magnesium sulphate, and organic matter. The last-named substance was present in sufficient quantity to exert a powerful reducing action on the insoluble ferric oxide contained in the brick. In the presence of water (which invariably contains carbonic acid) such reduced iron would to an appreciable extent pass into solution, forming a chalybeate water. On evaporation of this water from the surface of the brick a red stain of ferric oxide would be produced. If the brick were covered with plaster, the water would pass through the plaster and evaporate at its surface, producing a red stain, and this would be quite independent of the plaster itself. It appears to me that architects should have their attention called to the large percentage of soluble matter contained in some bricks, and also to the presence, where it exists, of soluble organic matter, which shows that the brick is very imperfectly burned."

An observant clerk of works has recently pointed out to me that the stain and white powder coming through from certain bricks only issues from the portion of the brick that has been crossed by other bricks when in the kiln. There are usually two places on the edges of bricks where other bricks have been laid across them, and it is some of these rectangular spots that give rise to the efflorescence. Where the brick has been freely exposed to the fire no soluble matter seems to come through the plaster. Judging from this it appears to be quite possible that if the bricks could be laid across each other in the kiln, flat side to flat side, instead of edge to edge, all the best burned parts of the bricks would be in contact with the plaster, and it seems likely that the unsightly staining, etc., would be greatly lessened, or possibly prevented altogether.

This is a matter for the brickmaker, and I do not pretend to know whether my suggestion could be carried out in practice; but if it is possible, I cannot but think it is well worth trying.

WM. J. KEMP,
Managing Director, Gypsum Mines, Ltd.

PILCHER *v.* PRICE & CO.

SIR,—Our attention has been drawn to a report in some of the trade papers of the case of Pilcher *v.* Price & Co. As the full trade and address of the Pilcher referred to is not given, the report in question has led to considerable misapprehension, and is likely to cause us inconvenience and injury owing to the similarity of names. We already have had several letters, our correspondents being under the impression that we are concerned.

Will you kindly allow us to state that the Mr. Pilcher referred to is in business at Portsmouth, and has *no connexion whatever with our firm, Pilchers, Ltd.*, Morgan's-lane, Tooley-street, London, nor have we ever had any business transactions with him?

We trust you will insert this disclaimer in your next issue.

LEONARD A. ROUTLEDGE.

A BUILDERS' CLERKS' ASSOCIATION.

SIR,—May I ask the favour of a few lines in your valuable journal with the object of forming an association for recognised builders' clerks?

The builders' foremen have two associations, I believe, and I feel certain there must be a good many of my fellow clerks to whom a meeting-house for social intercourse, lectures, etc., would be a great boon. An employment bureau could also be added. The subscription might be limited to, say, 2s. 6d. per month.

I shall be glad if any builders' clerks who are in sympathy with my proposal will kindly communicate with me at the address below, and a preliminary meeting can then be arranged.

STEPHEN H. BEER.

14, *Westwick-gardens,*
West Kensington Park.

WINDOW CLEANING AT HOTELS.

SIR,—The dangers which window cleaners run in working without efficient safeguards have unfortunately been again exemplified by a fatal accident at a London hotel. It is not difficult, however, to provide against accidents of this class. A strong leather belt to be worn by the window cleaner and provided with a life line, which can be attached temporarily to the top of a window opening, is all that is required. My own firm made a number of these for the London School Board and have recently fitted 130 windows at Holborn Viaduct Chambers for the Chatham and Dover Railway, with the necessary "eyes" to take the steel snaphooks which are attached to the life line. The belt, etc., is sufficiently strong to hold a man if he slips off a sill, and, were some such inexpensive appliance in regular use, there would be no more accidents of the class referred to.

J. C. MERRYWEATHER.

OAK SHINGLES.

SIR,—If oak shingles are not fixed with oak pegs, will you or any of your readers kindly give their experience as to the best and most suitable *metal* to use for nailing them to a closely boarded, vertical, or sharply inclined surface?

ENQUIRER.

The Student's Column.

ELECTRIC LIGHTING AND HEATING.—V.

Dielectric Strength—Spherical Conductor—Method of Testing—The Corona Round a Cylinder—Three-core Cables—Concentric Main—Table of Dielectric Strengths—Mica—Micanite.

IN DISTRIBUTING electrical energy the price of the copper used in the mains diminishes rapidly with the increase of the voltage. If, for instance, we double the voltage we halve the price of the copper required, provided that we design the system so that the heating of the mains is the same in the two cases. When the energy has to be transmitted many miles the cost of the copper required is prohibitive unless a very high voltage is employed. For this reason the energy required for many of the underground railways in London is transmitted from the Lot's-road Generating-station to the distributing-substations at a pressure of 11,000 volts—that is, 11 kilovolts. When power has to be transmitted over hundreds of miles greater pressures are employed. and voltages up to 100 kilovolts are now employed in everyday work. Schemes for utilising even higher pressures have been proposed, and so it will be useful to consider the limitations imposed on these schemes by the electrical phenomena which come into prominence at pressures which the electricians of the beginning of the XXth century consider enormously high.

Dielectric Strength.—At these high pressures a knowledge of the dielectric strength of insulating materials becomes all important, and so we have to consider what is meant by dielectric strength and how it can be measured. We may define the dielectric strength of an insulating material to be the maximum value of the electric stress it can withstand without breaking down. If we place a sheet of the material between two metal plates and gradually increase the voltage between them, then if the material be uniform, or, as physicists prefer to call it, isotropic, it will be found that at a particular voltage, depending on the thickness, a spark ensues; the material is punctured, an arc is started, and the metal plates (electrodes) are brought practically to the same potential. If the electric field between the two plates were absolutely uniform the electric stress would also be absolutely uniform, and the measure of this stress would be the voltage between the plates divided by the distance between them. It is therefore measured by volts per centimetre, or preferably kilovolts per centimetre. For instance, if we say that the dielectric strength of air is 38 kilovolts per centimetre we mean that if the two sides of a layer of air one centimetre thick were raised to a potential difference of 38 kilovolts a spark would ensue, the air being broken down. To break down a layer of air of n times the thickness we would require 38n kilovolts. This is practically true for all values of n greater than a tenth, but for smaller values of n other and much more complex phenomena have to be considered. It has been proved, for example, by several experimenters that when the distance between the electrodes is comparable with the wave length of light the disruptive voltage is practically independent of the nature or pressure of the gas between the electrodes, and that it depends on the nature of the metal of which they are made. This seems to prove that at microscopic distances the carriers of the electric discharge come from the metal and not from the gas. In practice, however, the distances between conductors maintained at a high potential difference is large, and so the molecular actions need not be considered.

The dielectric strength of an insulating material is not to be confounded with the resistivity of the material, and so far no one has discovered any connexion between the two. The dielectric strength of mica is many times greater than that of air, but the electric resistivity of air is hundreds of thousands of times greater than that of mica.

If we place the material under test between a metal plate and a pointed wire instead of between two flat metal plates it will be found that it punctures much more readily. This proves that the shape of the testing electrodes has an important bearing on the disruptive voltage, and must be taken into consideration when measuring the dielectric stress. Neglect of this fact has made of little value many otherwise careful experimental researches. A record of many of the results obtained will be found in Messrs. Turner and Hobart's book on "The Insulation of Electric Machines." In almost every case the data recorded are insufficient to enable us to calculate the true value of the dielectric stress at the instant of the breakdown.

One reason for this very unsatisfactory state of affairs is the widespread belief that the "breaking-down strength" is not subject to any regular law connecting the thickness of the sample under test with the disruptive voltage. The breaking-down voltage is supposed to be governed rather by the laws of probability than by any definite physical property of the body. In support of this contention it is pointed out that the results obtained by different experimenters vary widely, and that all experimenters find that thick samples have a less dielectric strength than thin samples.

In our opinion the mere fact that what is wrongly called the dielectric strength, namely, the volts divided by the thickness, is found to be less for thick samples than for thin is in itself a proof that there is a definite physical law connecting the disruptive voltage with a physical property of the body. If the increase of the apparent dielectric stress due to the curved nature of

the electrodes be taken into account it will be found that the material at the point where the dielectric stress is a maximum breaks down whenever this maximum stress attains the value which we define as the dielectric strength of the insulating material.

Spherical Conductor.—Let us consider the case of a metal sphere suspended in air by a thin wire, and we shall suppose that it is at a considerable distance from all other conductors. If the pressure between the sphere and earth, that is, if the potential of the sphere be v_1, and if q be the quantity of electricity (the charge) on it, the potential at any point P in the air near the sphere will be given by $v = q/r$. It follows at once by the differential calculus that the rate at which v increases as we move from the sphere is measured by $-q/r^2$, and Coulomb showed that the quantity q of electricity on a sphere equals $v_1 r$, and thus the rate at which v diminishes is v_1/r. Now by the definition of potential it follows that the rate at which it diminishes equals the electric force at the point, and this is the measure of the stress on the medium. Electrical engineers usually refer to the electric stress at a point as the potential gradient at the point—that is, the slope of the curve representing the values of the potential at different distances, for this is the measure of the rate at which the potential is diminishing. In reading the literature of this subject it is necessary to remember that electric force, electric intensity, and potential gradient all mean the same thing. By the electric force at a point is meant the force on unit positive charge placed at the point, measured in dynes, a dyne being the force which, acting on the mass of a gramme, gives it an acceleration of one centimetre per second per second. It is shown in mathematical treatises on electrostatics that this is numerically equal to the maximum slope of the potential gradient at the point. We shall assume this, but we wish to state the theorem definitely, as the conclusion is sometimes given as if it were obvious!

If we suspend a light straw by a silk thread and hold it near an electrified conductor it will set itself in the direction of the electrostatic force at the point. The "cobwebby" feeling experienced when one is in close proximity to a charged conductor is due to the electrostatic field round the conductor. An ebonite ruler rubbed with silk and brought near the face produces this feeling strongly. When the ruler is too near the face the air is broken down and a spark ensues. The laws governing this spark are identical with the laws governing the breakdown of a sheet of insulating material placed between the testing electrodes of a high-pressure transformer.

In the case of the spherical conductor considered above, when the potential gradient at the surface of the sphere equals 38,000 volts per centimetre the air surrounding it will break down, but as we have supposed that all other conductors are at a great distance from it a disruptive discharge will not ensue. The air immediately surrounding the sphere will be broken down and the broken-down air will form a spherical layer round the sphere, the outer radius R of which will be given by $V = 38{,}000\ R$, where V is the potential of the sphere. Hence the higher we raise V the thicker the layer of broken-down air surrounding the sphere.

When a spherical conductor is raised to a voltage high enough to make the intensity of the field in its immediate neighbourhood greater than 38 kilovolts per centimetre, the sphere will be seen surrounded by a faintly luminous enveloping cloud of a bluish colour which apparently does not touch it. This cloud is called the corona. As the pressure is increased the corona gets larger and larger, and short violet streamers are seen issuing from it, the space immediately surrounding the corona being the seat of great electrical activity. At still higher pressures the streamers get longer and a hissing noise is heard.

The above experiment proves that a disruptive discharge does not necessarily occur the moment the electric stress in the neighbourhood of a conductor exceeds the maximum stress that the dielectric can withstand. In the above case the broken-down air and the sphere form a new conductor, the stress at the boundary of which is the maximum to which the surrounding medium can be subjected. This maximum dielectric stress is what is properly called the dielectric strength of the medium.

Method of Testing.—In practice the dielectric strength of a liquid or a gas may be determined as follows. Two spherical metal electrodes connected with the secondary terminals of a high tension transformer are immersed in the liquid or gas. The potential difference between them is gradually increased until a disruptive discharge ensues. If V be the potential difference between the electrodes at this instant, x their distance apart, and r the radius of each sphere, then it has been shown by A. Russell ("Phil. Mag.," p. 246, February, 1906) that the maximum value of the electric stress between them is given very approximately by

$(V/x)\ (1 + x/3r)$ volts per centimetre,

where x is the minimum distance between the two spheres, provided that x be less than r.

The following table gives the experimental results obtained by Professor A. Heydweiller and J. Algermissen on the sparking distances with direct voltages between two spherical electrodes, each 5 cms. in diameter, x being the minimum distance between them.

x in Cms.	V (observed) Kilovolts.	V (calculated).
0·5	18·4	18·4
1·0	32·9	32·9
1·5	46·2	46·2
2·0	58·2	59·0
3·0	78·0	78·9
3·5	86·4	87·1
4·0	94·2	95·3

In calculating the above table we have taken 38·4 as the dielectric strength of air. It will be seen that the calculated numbers are in satisfactory agreement with the observed values.

The Corona Round a Cylinder.—The luminous effects produced when a cylindrical conductor is maintained at a very high alternating potential from earth have been investigated experimentally by E. Jona, a well-known Italian electrician. He found that a cylindrical wire supported by high-tension insulators becomes luminous when the voltage between it and surrounding objects attains a definite value which depends mainly on the diameter of the wire. The corona in this case is practically a concentric cylinder, the diameter d of which varies with the voltage V. In the following table V is in kilovolts and d is in millimetres.

V	12·3	18·2	28	42	57	81
d	0·12	0·25	0·50	1·0	2·0	4·0
V	81	106	127	152	185	196
d	4·0	6·0	7·60	10·0	12·5	15·0

From 1 to 15 millimetres V is given roughly by the equation

$$V = 30 + 12\ d.$$

It will be seen that the diameter of the corona for a pressure of 18 kilovolts is 0·025 cm. Thus, if the diameter of the wire be less than 0·025 cm., in a dark room it will be seen surrounded by a corona when the pressure between it and the earth is greater than 18 kilovolts. Bringing a conductor connected with the earth near the wire increases the luminous effects, and if brought too close a spark will leap across. E. Jona found that the diameter of the corona was 1·5 cm., whether the wire were 0·01 or 1·4 cm. in diameter, when the pressure was 196 kilovolts.

Three-core Cables.—The underground cables used for high-tension power transmission have generally three conductors, as three-phase currents are usually employed. We shall give a brief description of the method of manufacturing these cables in order to show the nature of the problems that arise in practical work. The conductors are usually stranded, a 19/14 core, for example, would be one made up of nineteen strands of wire of No. 14 S.W.G. Strips of paper are wound round the cores, and the cores are spiralled relatively to one another, making a complete turn round the axis in about 6 ft. The cores are now wrapped together with more strips of paper, and after immersion in a bath of a special compound are passed to the lead-covering press. A covering of compounded tape is next served over the lead by a special machine, and over this comes an armouring of galvanised-iron wires. The minimum distance of the cores from one another and from the sheath (the lead covering) depends on the voltage for which the cable is designed. It was formerly the custom to allow a thickness of one-twentieth of an inch for every thousand volts, but this rule is no longer employed. For instance, the usual minimum distance between the cores, if the cable be for 11,000 volts, is about 0·4 of an inch. In the case of the three-core cable it is not easy to calculate the maximum value of the electric stress for given voltages of the three conductors. A knowledge of the value of this stress, however, is essential before we can find out the "factor of safety" at which the cable will be worked.

Concentric Main.—In ordinary alternating current-transmission concentric mains are usually employed. In this type of main we have a cylindrical conductor surrounded by a ring of wires practically forming a coaxial hollow cylinder, which forms the return conductor. Over this return conductor tape or jute yarn is served, and finally a lead sheath. In this case it is easy to calculate the maximum value of the electric stress between the two conductors. It is equal to $V/[a \log (b/a)]$, where V is the P.D. between the conductors, a the radius of the inner conductor, and b the inner radius of the outer conducting cylinder. It can be shown that if a be greater than $b/(2·7)$ a disruptive discharge will occur the moment the insulating material surrounding the inner cylinder is subjected to a stress equal to the dielectric strength of the insulating material. If, however, a be less than $b/(2·7)$, the material round the inner cylinder will be charred at first, and a disruptive discharge will not occur till the outer radius of the charred insulating material equals $b/(2·7)$.

Table of Dielectric Strengths.—In the following table approximate values of the dielectric strengths of some of the ordinary materials used in electrical work are given. The values are in kilovolts per centimetre.

Hydrogen	25	Paraffin	140
Air	38	Glass	160
Marble	42	India-rubber	250
Presspahn	50	Ebonite	400
Sperm-oil	50	Paper	400
Ebonite	60	Micanite	800
Linseed-oil	80	Mica	1,000

Mica.—The above table shows that mica has a very high dielectric strength. It has also a fairly high resistivity. It is therefore very suitable for insulating purposes when the pressure is high. It is a silicate of aluminium and sodium or potassium. It is finely luminated, and the thin sheets can be separated by means of a pointed knife. Most of the mica used by electricians comes from India, Canada, and the United States. The wholesale price of mica is about a shilling per pound. This seems high, at first sight, considering the large deposits there are of it in the world, but the cost of working most of these deposits is very high, as a great weight of rock has to be excavated for a very small quantity of mica. The mica most suited for electric purposes comes from India, and the cost is low, as native labour can be had at a very cheap rate, not only for excavating, but also for splitting the mica into sheets. White mica is the best.

Micanite.—Drawbacks to the employment of mica are its lack of flexibility and uniformity. Hence there are various kinds of reconstructed mica on the market, which are called micanite, megohmit, megotalc, etc. In making micanite, thin sheets of mica are stuck together with an insulating cement at a high temperature and under great pressure. When hot it can be bent into any desired form, and when cold has considerable mechanical strength, emitting a metallic sound when struck by a hard object. The manufacture of insulating materials, both solid and liquid for electrical purposes is now an important industry, but the great variety of the preparations on the market makes it very difficult to know which is the most suitable. The materials should be tested for resistivity, dielectric strength, hygroscopic qualities, heat-resisting qualities, and mechanical strength and flexibility.

WESTMINSTER CITY COUNCIL.

At the sitting of the Westminster City Council on Thursday last week the following matters were dealt with—

Kean-street Depot Buildings.—The General Purposes Committee reported having had before them plans and specifications prepared by the City Engineer and Surveyor for the erection of buildings at Kean-street Depot. They stated that the Council possessed twenty works and highways depots, wharves, stores, and destructors in the city, and now that Ebury-bridge and the Grosvenor Canal property had been purchased, they felt that before building on the Kean-street site the whole question of depot accommodation should be fully considered with a view to the ultimate concentration of the bulk of the work at Ebury-bridge.—It was decided to refer the whole matter to a special committee.

Paving of Great College-street and Little College-street.—The Works Committee reported having considered the question of paving the whole of Great College-street and Little College-street, in connexion with the widening of those streets under the Westminster Improvement scheme. The estimated cost was 2,100*l.*, and the committee felt that the cost was too heavy, and accordingly only recommended that the paving be made good where land had been added to the streets, at a cost of 351*l.*

Wood Paving.—It was decided to enter into a fresh agreement with the Improved Wood Pavement Co. for the maintenance of the carriage way paving of Piccadilly between Half Moon-street and Park-lane for five years.

Drainage of Victoria Station.—A long report was submitted with reference to the application of the London, Chatham, and Dover Railway for the Council's approval of their plans relating to the drainage arrangements for Victoria Station. The proposed scheme of drainage was to construct a sump or cesspool at a sufficient depth to receive the drainage of the basement, and to periodically pump or otherwise raise the contents of the sump and discharge them into the sewer. The Act evidently intended the word "drain" to apply with its original meaning, for it directed that the drain shall be laid "with such fall" as the Council may direct. Therefore drainage to the sewer by gravitation was the only system which can meet the requirements of the Act, and the Town Clerk advised that they were bound to disapprove of the plans.—It was agreed to confirm the disapproval of the plans and to refer the Railway Company to sect. 211 of the Metropolitan Management Act, 1855, giving them the right to appeal to the Appeal Committee of the London County Council.

THE NORTHAMPTON INSTITUTE.

On Friday evening last week the annual distribution of prizes and certificates awarded to students at the Northampton Institute was performed by Mr. Evan Spicer, Chairman of the London County Council. The number of students at the Institute is constantly increasing, and this year the awards were very numerous. The laboratories and workshops were open to the inspection of visitors, the ordinary work being in progress by a limited number of students. There were also on view specimens of the finished work of students, and approved examples of the various subjects treated of which are used to illustrate the lectures. In the Artistic Crafts department some very effective work was exhibited, particularly of wood carving and cabinet work; stone carving, modelling, and goldsmiths and silversmiths' work being also represented by some examples of students' work. In the mechanical laboratory demonstrations were carried on with a 75-ton testing machine; work was in progress in the smithy, and in the pattern-making and carpentry workshops interesting work was being done.

Obituary.

Mr. Hugh McKie, C.E.—The death has just taken place of Mr. Hugh Unsworth McKie, C.E., at White House, Spondon, Derby, the residence of his son, who is Resident Engineer of the sewerage scheme there. Mr. McKie, who was 86 years of age, was the son of Mr. James McKie, farmer, of Garstang, near Lancaster. He received his education and served his articles as a civil engineer in that town, where he entered into partnership with Mr. Lawson, a water engineer. It was in 1854 that he made his first acquaintance with Carlisle. At that time Mr. (afterwards Sir Robert) Rawlinson had prepared a scheme for the sewerage of the city, and the Surveyor of that date, Mr. Hogg, being unable to undertake the supervision of the works, Mr. McKie was appointed Resident Surveyor. He was the inventor of the system of lamp-holes and manholes for which Mr. Rawlinson secured the patent. He also devised the system of half-socket joints for low-lying districts so as to carry off the sub-soil water. On January 4, 1877, he was appointed Surveyor of the city, and in seconding the motion for his appointment Mr. Joseph Bendle alluded to his connexion with the city as Resident Surveyor, and added that since that time Mr. McKie had been engaged all over the kingdom and on the Continent in various engineering works, including construction of railways, sanitary works, harbours, sewerage, and street formation. After his early connexion with Carlisle Mr. McKie went to Alnwick, and then he was in North Wales for a long time, during part of which he acted as slate quarry manager. He also had a hand in the construction of the Midland Railway. He was employed as engineer of Southport sewerage works at the time of his appointment to the Surveyorship of Carlisle in 1877. As an engineer he had done work for the late Mr. Mansergh, and during his residence in Carlisle he carried on, in addition to the Corporation work, a private practice in partnership with Mr. Mansergh, who in later years was to be intimately associated with Carlisle as the engineer of the water scheme. Mr. McKie was one of the original members of the Carlisle Rifle Corps. On leaving Carlisle he opened an office in Westminster, and subsequently he has lived at Ludlow and Spondon. About 1850 he married Miss Elizabeth Whiteside, of Liverpool, who predeceased him. He is survived by three sons and four daughters.

Mr. J. W. Simpson.—Mr. John W. Simpson, a well-known North-country builder and contractor, died at his residence at North Shields on the 28th ult. He was a member of the Tynemouth Town Council.

General Building News.

Church Restoration, Exmouth. — Holy Trinity Church, Exmouth, was re-opened after restoration on the 23rd ult., when the nave was dedicated by the Bishop of Exeter. The work was in the hands of Mr. Fellowes Prynne, architect, London. The cost of the whole scheme will be 15,000*l.*

Chapel Renovation, Chalfont St. Giles.—The Primitive Methodist Chapel at Chalfont St. Giles has recently been reopened after having been closed some months. Before the repairs it was found that the building was "spreading," and it was necessary to take off the roof and replace it by an entirely new one, besides putting strengthening piers outside the walls. A handsome brick and stone porch has been added to the front of the building, and two new swing-door entrances. In place of the old entrance is a stained-glass window. A new rostrum and Communion rails have been provided, and all the walls have been painted and decorated, the windows renovated, and the seats repaired. The contract, which was carried out by Messrs. Newton & Axe, builders, of Chalfont St. Giles, and Mr. J. B. Copeland, decorator, of High Wycombe, was according to the specification of Messrs. Hooper & Nash, the architects, of High Wycombe and Gerrard's Cross, under the supervision of Mr. A. W. Nash.

Council School, Groby.—The new Groby County Council school has just been opened. The accommodation provided consists of a schoolroom for 100 children, capable of being divided into two classrooms by a folding partition, and in addition two classrooms for 50 each. The floors of the schoolroom and classrooms are covered with maple boards on concrete, and the cloakroom, corridor and entrances with granolithic paving. The walls throughout are lined to a height of 4 ft. and plastered and covered with Duresco above. The internal woodwork is of pitch-pine. The heating is by Grundy's patent ventilating fire-grates. Externally the walls are of granite from the Groby quarries, with Matlock stone dressings and mullioned windows. The roof is covered with grey Welsh slates. The contractors were Messrs. F. Corah & Sons, of Loughborough, who have executed the work from the designs and under the superintendence of the architects, Messrs. Barrowcliff & Allcock, of Loughborough.

Council School, Botchestone.—A new Council school has been opened at Botchestone, Leicestershire. It contains a small hall and two classrooms, providing accommodation for 82 scholars, including infants. Externally the building is faced with various coloured sand-faced bricks with stone band around at cill level, the roofs being boarded and covered with hand-made tiles. The builders are Messrs. Griffin Brothers, of Hugglescote, and the architect was Mr. Walter Brand, of Leicester.

New School, Bishops Cannings. — The Bishop of Salisbury recently opened a new school which has been erected in this village. The architect for the work was Mr. W. B. Medlicott, of Devizes, and the builder was Mr. T. Stone. The contract price was 1,145*l.* Accommodation is provided for 100 children.

School Enlargement, Bedford.—The Bedford Modern School is now being enlarged by the addition of sixteen new classrooms, together with a new gymnasium, smithy, carpenters' shop, a clearance of some of the old buildings, and improvements of those remaining. The work will be carried out in two sections. The section now in hand is the construction of a building containing twelve of the new classrooms. The walls are of Arlesey white brick, and the windows have stone sills and heads. The second section of the work deals with the east side of the quadrangle. Here there will be a new building of two stories, each with a corridor connecting at right angles with those already referred to on the ground and first floors of the No. 1 section. On each floor there will be two new classrooms, 25 ft. 6 in. by 21 ft., corresponding to the others in height, together with a cloak-room. The corridor divides the classrooms from the gymnasium, which will be 74 ft. long and 30 ft. wide, with a height of 31 ft. to the ceiling of a party open timbered roof. On the quadrangle side of this block the Prichard Museum building will remain much the same as it is, but the old buildings adjoining on the south side will give way to the new classroom block, which will be brought out some feet into the schoolyard. The classrooms will be warmed by fires in open grates, and the gymnasium and corridors will be provided with radiators. Mr. H. Young, architect to the Governors, prepared the plans for the work, the contractor being Mr. Samuel Foster, Mr. C. Larkins acting as the foreman. The cost of the work will be about 8,000*l.*

Art School, Ayr.—The new art school, which is being erected at Ayr, is a distinct building wholly for art purposes, erected in the Academy playground. It provides accommodation for the day classes of the school and for the continuation classes at night. On the ground floor are rooms for machine drawing and building construction, also practical work, and on the floor above are a large double studio, 45 ft. by 35 ft. and 23 ft. 6 in. high, and a smaller and lower studio, with fireplace for a small furnace. This room will be used for applied design of various kinds. The modelling studio is 25 ft. by 24 ft. and 23 ft. 6 in. high, with a scullery for clay-working adjoining, with racks for students' work in progress. These studios and the life studio on the floor above have large vertical wall lights in the larger rooms, each window being 17 ft. wide by 18 ft. high, continued 12 ft. into the roof above at an angle of 45 degrees. All studio windows are due north. Opening from the life studio is a gallery overlooking the modelling studio, and a small observation balcony on the other side of the life studio overlooks the large double studio on the floor below. The staircase, gallery, and studio vestibule are for loan exhibits and the display of students' work. The heating apparatus is in the basement. Mr. James A. Morris, Ayr, is the architect of the building.

New Hospital, Duntocher, N.B.—The new joint-hospital near Hardgate, Duntocher, was opened a short time ago. The buildings, which are constructed of red sandstone, occupy a site of about 3 acres, upon which are six buildings in all. The administrative block is in the centre of the site. To the east and west are the scarlet fever and the enteric fever pavilions respectively, the former having accommodation for thirteen beds, and the latter nine beds. These blocks are divided into male and female wards. The wards have lofty ceilings, and have windows on both sides. All corners are rounded. The hospital, which will cost about 11,000*l.*, was designed by the late Mr. Robert A. Bryden, and carried to completion under the supervision of his son, Mr. Andrew F. Bryden, of Messrs. R. A. Bryden & Robertson, architects, Glasgow.

Proposed New Theatre, Lincoln.—Plans for a new theatre which will occupy the site extending from the Saltergate entrance to the Saracen's Head Yard, to the corner whereon the old police-station stood, have been prepared by Mr. W. Hancock, of Leicester. The theatre will hold 1,500 people. Its cost will be about 15,000*l.*

New Offices, Bristol.—New offices have been erected for the Bristol Gas Company on a site adjoining the Colston Hall. The architect is Mr. W. P. Gough, and the contractor Mr. C. A. Hayes, both of Bristol. The building, which was illustrated in our issue for October 8, 1904, has been erected with St. Aldhelm Box Ground stone supplied by the Bath Stone Firms, Ltd.

Residential Suites, Cavendish-square, W.—The new buildings now being erected on the west side of Cavendish-square consist of a block of residential suites and flats, after the plans and designs of Messrs. Gilbert & Constanduros, and will be named, as was the mansion they have replaced, Harcourt House. A brief history of the former house was given in a "Note" in our issue of July 14 last year.

St. George's-terrace, Gloucester-road, W.—The leases of the old houses forming this terrace having nearly all fallen in, the site, which has a frontage of about 400 ft. and a return frontage of about 170 ft. to St. George's-place, and covering an area of nearly 1½ acres, is being cleared. By arrangement with the London County Council and the Kensington Borough Council a considerable street improvement will be carried out, and the new frontage

of the site will be utilised for the erection of a number of blocks of shops and flats, the plans of which have been prepared by Mr. Paul Hoffmann, and which will provide a new feature in the shape of roof-gardens on the first-floor level, the upper part of the premises setting back considerably behind the line of shops.

ST. ASAPH UNION WORKHOUSE INFIRMARY.—This infirmary has now been opened. It consists of two blocks, which are connected by a corridor and with the main building by a covered way. The larger block is of linear design, formed by a centre and two wings. On the ground floor the centre to the front contains a nurses' sitting-room and mess-room, and having a day-room on each side. Behind these is a corridor which cuts the centre in two, and gives access to the main wards and to the various rooms forming the centre part of the block. At the opposite side are the kitchen, staircases, medical officer's room, lavatories, etc. Between the kitchen and the doctor's room is the corridor which connects the block with the workhouse. The bath-rooms are placed between the day-rooms and the large wards. These wards contain ten beds each, and are about 33 ft. long by 25 ft. wide. At the end of the wards are placed the closets and sinks. They are flanked by small verandas, and from one of these springs the fire-escape staircase. The first floor contains two two-bedded rooms, head nurse's bedroom, two single-bedded and two ten-bedded wards, ward scullery and bath-room. The maternity block is placed between the infirmary and the main building. It contains a three-bedded room, a single-bedded room, a waiting-room, and the usual sanitary arrangements. The infirmary is built of limestone, with a lining of brick, and the wards, passages, and rooms have a dado of glazed bricks. Internal angles have been rounded off. The wards are warmed by Musgrave stoves, and fresh air is admitted by Tobin's tubes. There are foul-air shafts running above the roof and connected with air-pump extractors. The drainage is into the main sewer of the city. The cost was 8,000*l.*, or 160*l.* per bed. The architect was Mr. James Hughes, of Denbigh, and the contractors were Messrs. Evans & Son, of Colwyn.

NEW ISOLATION WARDS, BRISTOL GENERAL HOSPITAL.—The Lady Mayoress opened on Saturday last week new isolation wards in connexion with the Bristol General Hospital. These are situated on the east side of the entrance roadway, and the building consists of ground and first floors. The accommodation on each floor is practically the same, there being on each two wards with two beds each and one single ward, besides duty-room. Provision is thus made for ten patients. The front portion of the building against Guinea-street is arranged for the accommodation of the nurses, and contains four bedrooms and a sitting-room. The floors have been laid with "Euboeolith." The doors are known as the "Gilmour" patent, built up with wood in sections, presenting a solid and smooth appearance, without panels or sinkings in which germs could lodge. These and other joinery are finished in white enamel. The walls are plastered with cement, and are intended ultimately to be finished with enamel. The warming, which has been executed by Messrs. J. Crispin & Sons, is upon the low-pressure hot-water system, the extract ventilation being by means of an electric fan. The work has been carried out by Mr. R. F. Ridd, the architects being Messrs. Oatley & Lawrence.

Stained Glass & Decoration.

MEMORIAL SCREEN, WORCESTER.—A memorial screen has been erected in St. Mary's Church, Worcester. Mr. C. Ford Whitcombe, of Broadheath, was the designer of the screen, which was executed by Mr. R. Haughton, of Worcester.

Sanitary and Engineering News.

COMBINED DRAINAGE.—The Lambeth Borough Council has received the following letter from the Secretary to the Prime Minister in answer to a communication urging the necessity for the introduction of amended legislation with regard to combined drainage:—"In reply to your letter of the 3rd inst., I am directed by the Prime Minister to say that it was found impossible to undertake legislation for the amendment of the Metropolitan Combined Drainage Law last Session. The Prime Minister understands, however, that the President of the Local Government Board is quite alive to the importance of the subject, and you may be sure that the matter will not be lost sight of."

WINTERINGHAM HAVEN, LINCS.—The Lancashire and Yorkshire Railway Company have framed a Bill to enable them to extend their system to Winteringham Haven, on the south bank of the Humber, for dealing with part of their traffic through Goole, which is their existing terminus eastwards. The proposed line will traverse Fockerby, in Yorkshire, and will then be carried through a tunnel beneath the Trent, reaching Winteringham by way of Garthorp, Aukborough, and Whitton. Three short railways in Winteringham will link up with the Great Central Railway Company's North Lindsey light line from Frodingham in the south, which is in course of being made, and running powers will be applied for over that line to Barton on the Humber.

Appointments.

LONDON.—The Local Government Board have sanctioned the following appointments and increase of salary of sanitary inspectors:—Metropolitan Borough of Battersea, Mr. J. J. Burgess in place of Mr. A. Peverett, deceased, and Miss A. E. Moss in place of Mr. A. C. Young, resigned; Metropolitan Borough of Stepney, Mr. H. Abson in place of Mr. R. Adams, resigned; Metropolitan Borough of Stoke Newington, Mr. H. E. Cox, salary increased.

Foreign.

GERMANY.—In October last the new theatre and guildhall of Bückeburg were opened. The buildings form one group and are of sandstone, from the design of Herr Sasse, of Hanover. The style adopted is German Renaissance, recalling the old Schaumburg-Lippe castles. The total cost amounted to 450,000 marks.——The ancient church, Liebfrauenkirche, Liegnitz, Silesia, has just been restored at a cost of 180,000 marks, exclusive of painted and tile decorations which cost 41,000 marks. The church was founded over seven centuries ago, and was entirely rebuilt in the XVth and again in the XIXth centuries. Recently large cracks discovered in the vaults and external walls caused extensive repairs to be executed; the internal galleries were also removed, thus restoring the church to its original state and the walls were covered with mediæval decorative designs.——On January 1 the new Schiller Theatre was opened in Charlottenburg. It is the first theatre in Berlin to be built on the lines of a classical theatre, and is from the designs of Messrs. Hellmann & Littmann, of Munich. The auditorium can seat 1,450 persons, and in the summer months can be reduced to seat only 960.

AUSTRIA.—Recently a fine monument was unveiled in Vienna, to the memory of the Household Regiment. The monument is rich in bronze figures, the most important being a heroic-sized Grand Master of the Teutonic Order, bearing the colours, while the portraits of two other Grand Masters, the first and the present commanders of the regiment, decorate the granite pedestal on which stands the main figure. Bronze plaques in relief illustrate peculiar acts of bravery performed by this regiment in the Seven Years' War, in the Turkish war of 1697, and in 1814, while bronze shields bear the arms of the city and of the Teutonic Order. The monument is from the designs of the architect Anton Weber and the sculptor Johannes Beuk.

ITALY.—The harbour of Genoa is being enlarged and improved. Ten million kronen are being spent on lengthening the Molo Galliera by 200 metres and on additional docks, while 40 million kronen will be spent on a new harbour basin, 800 metres by 500 metres by 12 metres in depth, on a new breakwater, and on other works.

SWITZERLAND.—In Zurich experiments have been made with a new road metal, gravel and tar, which prevents the formation of dust and mud, and probably has a future before it. The tar is so mixed with the gravel as to surround each particle; the mixture is then protected from the weather for eight or ten weeks, during which period fermentation takes places, and the gravel is thoroughly impregnated with the tar, so that its dust-making property is diminished. A cubic metre of flint would require 20 kilos of tar, while limestone would absorb 25 kilos. The cost of production is insignificant.

HOLLAND.—The tercentenary is about to be celebrated, in the new church, of the establishment of the English Reformed Church in Amsterdam. A record has been preserved—it is written in English with many of the words spelt in a somewhat Dutch fashion—of the opening and dedication of the former church in the Round Bagijnhof "in the Jaere of our Lord and Savior 1607, the third day of the moneth commonlij callet fabruarij . . . for the Englich people dwelling at Amstelredamme in Holland."

INDIA.—The Barsi narrow gauge light railway has been recently extended to Pandharpur, in the Bombay Presidency, whence it is proposed to lay a further extension, about 85 miles in length, to Miraj. The line was established by Mr. G. R. Calthrop, M.Inst.C.E., who is now consulting engineer to the proprietors. The gauge is 2 ft. 6 in., and it is claimed that the adoption of a principle which provides for a uniform maximum axle-load of 5 tons for all the carriages, waggons, and locomotives has produced most satisfactory results in the transport, on rails weighing 35 lbs. to the yard, of heavy and bulky goods such as are carried over the Great Indian Peninsula line on much heavier rails set to the wider standard gauge.

Miscellaneous.

STREET WORKS, NEWCASTLE.—The annual estimates of the Town Improvement and Streets Committee of the Newcastle Corporation for the year 1907-8 have just been issued. The estimates include amounts for taking up chip paving and laying down tar-macadam in about eighteen streets and seventeen back streets. In the East District chip-paving is to be taken up, and tar-macadam substituted in a few streets. The maintenance of macadamised roads is to cost 12,000*l.*—the same amount as last year. Sewering is to cost 4,735*l.*, as compared with 4,431*l.*; flagging, paving, and tar-macadam is to cost 23,009*l.*, as compared with 14,265*l.*; and for special items 4,738*l.* is put down, as compared with 4,386*l.* The total for 1907-8 is 44,572*l.*, as compared with 35,082*l.* last year. Street watering is to cost 1,714*l.*, the same as last year. For cleansing roads and streets, gritting wood-pavement, tar-macadam and cleansing gullies, 32,390*l.* is to be spent, as compared with 32,627*l.* The removal of the house refuse, including ashpit cleansing, is to cost 20,134*l.*, against 20,254*l.* The sum set down for the Byker destructor is 1,305*l.*, the same as last year; and the Walker destructor, which is now in the control of the Corporation, is to cost 300*l.* For cleansing and flushing sewers, 2,260*l.* is put down, as compared with 2,140*l.* last year; and the special items are the same, 1,440*l.*

SURVEYORS' GOLFING SOCIETY.—The "Chartered Surveyors' Golfing Society" has just been formed, membership of which is restricted to members of the Surveyors' Institution, with a view to arranging matches with societies of the kindred professions, in addition to which it is proposed to hold an annual tournament. Mr. S. Chesterton, 116, Kensington High-street, W., is the hon. secretary.

SCOTTISH NATIONAL EXHIBITION, EDINBURGH, 1908.—At a meeting of the Executive Council held in Edinburgh on the 23rd ult., Lord Dean of Guild Wilson in the chair, reports were given by several committees, and a number of recommendations made were adopted. In connexion with the competitive plans of the buildings, Mr. John James Burnet, Glasgow, was appointed assessor, and it was reported that he is to meet several members of the executive in the grounds within the next few days, and thereafter the conditions in connexion with the competitive plans will be finally adjusted. The Fine Arts Committee recommended that the loan collection should be confined to British artists, that there should be an art union in connexion with the exhibition of paintings and water-colours by living artists, and with regard to sculpture exhibits should not be confined to casts, but marble and bronze designs should also be accepted.

YORK MASTER BUILDERS' AND CONTRACTORS' ASSOCIATION.—On the 22nd ult., at the Old George Hotel, York, the members of this Association held their annual dinner, the President (Mr. G. Sharp) presiding. He was supported by Mr. A. W. Sinclair, President of the Yorkshire Federation; Councillor G. Mansfield, Councillor W. H. Birch, Councillor J. Birch, Mr. W. E. Biscomb (vice-president), and others.—Mr. E. T. Felgate proposed "The Yorkshire Federation of Building Trades Employers."—Mr. A. W. Sinclair, responding, said that during the past few weeks the York builders had set a good example to their fellows. Not only were they united themselves, in the face of trouble, but they reported the facts to the Yorkshire Federation, the secretary of which notified every association in the country as to the state of affairs in the city. As it happened they were not called upon to act, but it was pleasing to know that it was easy to get the members of the Federation to act together when there was any attempt at injustice or oppression. Referring to the Trades Disputes Bill, Mr. Sinclair said it hardly had an honest friend except the Labour party, yet it became law. There was now a new force to encounter, the men not only being combined in their particular trades, but acting in Parliamentary matters as a federation of trades. It was not unlikely that in the near future the masters might have to follow on somewhat similar lines, and it might be necessary to take a leaf out of the book of the operatives and have a larger Federation in which all trades were joined together.—Mr. S. Needham gave "Success to the York Association."—The President, in reply, said they had had strife with the workmen in the past, but he was pleased to say there was little sign of it to-day. People outside had suggested that the cost of building

was now excessive, and that this would be an opportune time to reduce the workmen's wages. The association had considered this question, and, seeing the acute state of depression existing, and the number of unemployed, thought it would not be acting in a straightforward way to take such a step at this time. The Conciliation Board, formed some eighteen months ago, had not had to deal with a single case.—Mr. R. Dent proposed "The City and Trade of York." He said it was the bounden duties of the governors of any city like this to take every possible care of the remnants left from old times as monuments of the past.—Councillor G. Mansfield responded.—Mr. W. E. Biscomb (vice-president) gave the health of "Architects and Surveyors," and suggested that the builders and architects of the city might approach the Education Committee and ask them to form technical classes which would tend to give the young men the right sort of instruction and improve the buildings of the city.—Mr. E. T. Felgate replied to the toast, and said that, as one who had won prizes, he could assure them that not every boy who turned out a prize drawing was an architect. He suggested that builders should refuse to recognise amateur architects: and architects might in return refuse to recognise amateur builders.—Mr. J. Hardgrave proposed "The Visitors."

BLACK COUNTRY BRICK TRADE.—The brick manufacturers in the Oldbury, West Bromwich, Rowley, and adjacent Black Country districts, have complained for a long time past of the unremunerative rates at which bricks were being sold. Conferences of the masters have taken place recently with reference to the matter, and as the result it is understood that the price of common bricks will be advanced 1s. per thousand on February 1. The manufacturers state that the prices of coal and other articles largely used in making bricks have been advanced considerably lately, the effect being that producers are not obtaining a fair amount of profit, whilst in some cases the common class of bricks are being sold below cost price. It may be mentioned that the rate at which common bricks are being sold at the present time is 5s. or 6s. per thousand below what it was six years ago.—*Birmingham Post.*

GYPSUM IN THE DOVE VALLEY.—An instructive paper read in September last by Mr. T. Trafford Wynne has recently been issued in pamphlet form by the Institution of Mining Engineers. Although the paper is chiefly valuable for the personal observations and the special knowledge of the author relative to the Dove Valley deposits, it contains some interesting notes concerning the chemical composition, geology, and uses of gypsum. In the form of alabaster the material has been used for hundreds of years past in Great Britain, where the great centres of production were Burton-on-Trent, Nottingham, and York. Mr. Wynne points out that in early times, as at present, large blocks of the stone have always been obtained from Tutbury in Staffordshire. Alabaster was largely used in the archway of the great western doorway of Tutbury Church, commenced in 1080, thus showing that its use in this country dates back to the time of the Norman Conquest. In modern times no fewer than eighteen blocks of about 15 tons weight each were sent from the same district for use in the building of Mr. Vanderbilt's house in New York. Apart from the employment of gypsum by architects for pillars and wall panels, and by sculptors in the execution of monumental and decorative work, the material is chiefly used for the preparation of plaster of Paris and allied products. Its presence in the strata from which the breweries of Burton-on-Trent derive their water supplies is suggestive of another use (or, as some think, misuse) of the mineral which does not come within the purview of our readers from a professional standpoint. In the Dove Valley the deposit, so far as at present determined, lies near the village of Hanbury, and the three mines now being worked are situated close to the road leading from Tutbury Castle to Sudbury, two of these mines being at Fauld and the other at Draycott-in-the-Clay. The gypsum outcrops on the hillside and all classes of stone are mined, from large alabaster blocks—pure white, veined, and coloured, and the best white gypsum for making the finest qualities of plaster—down to stone so mixed with marl as to be of very little value. The author gives, among other useful data, a table containing statistics of the output of gypsum in England, particulars relative to the character and extent of the deposit in the Dove Valley, and an illustrated description of the methods of working there followed. The pamphlet is one that can be commended to our readers, especially for the reason that it is the first published account of the Dove Vale gypsum deposits.

"THE LOCAL GOVERNMENT ANNUAL."—The sixteenth annual issue of the Local Government Annual and Official Directory (27a, Farringdon-street, E.C.) has just been published. The main portion of the book is devoted to the directory, which gives the names and addresses of the chief officials of all corporations, London borough councils, county councils, boards of guardians, urban and rural district councils, county and borough asylums, etc., throughout the kingdom, as well as the public libraries, public parks, and City companies of London. A feature which will be found useful is the insertion of the names of the chairmen of committees in the metropolitan boroughs, also the chairmen of the London County Council committees. The names and addresses of the Metropolitan Water Board are also included, and accompanied by a scale of charges in every district supplied by the Board. The other section consists of a list of the various education committees in England and Wales. The title and locality of each are given, together with the name of the secretary. In addition to the directory, there is a large quantity of useful information relating to the public libraries, baths and washhouses, and electric light undertakings in the boroughs of London. The charges for gas in London are shown, and the population of the various provincial unions is given. There is also a complete list of all the parks and open spaces of the metropolis, with the local authorities controlling them. The Annual, price of which is 1s. 6d., is a compact and useful little work.

LONDON COUNTY COUNCIL SCHOOL OF BUILDING.—The teaching staff of the London County Council School of Building, Brixton, held their first annual dinner on Saturday, January 19, 1907, at Pagani's Restaurant. After the dinner a programme of toasts and songs was gone through.

PROPOSED BEAUTIFUL CITY CONFERENCE AT LIVERPOOL.—A meeting was held at the Town Hall on the 21st ult., the Lord Mayor (Mr. J. Japp) presiding, for the purpose of making arrangements for the second conference of those interested in beautifying our cities. Among those present were Sir Robert Hampson, Sir Edward Russell, Archdeacon Madden, Canon Morley Stevenson, of the Warrington Training College, and hon. secretary of the Beautiful City Conference, Professor Ramsey Muir, Mr. Meade-King, C.C., and many others.

INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.—The arrangements for the Fourteenth International Congress of Hygiene and Demography, which is to be held at Berlin, from September 23 to 29, are now in a forward state. The subjects for discussion have been fixed and the readers of papers selected and invited, most of them, both German and foreign, having accepted the invitation. All further information can be obtained from the office of the Congress, Eichhornstrasse 9, Berlin 9 W.

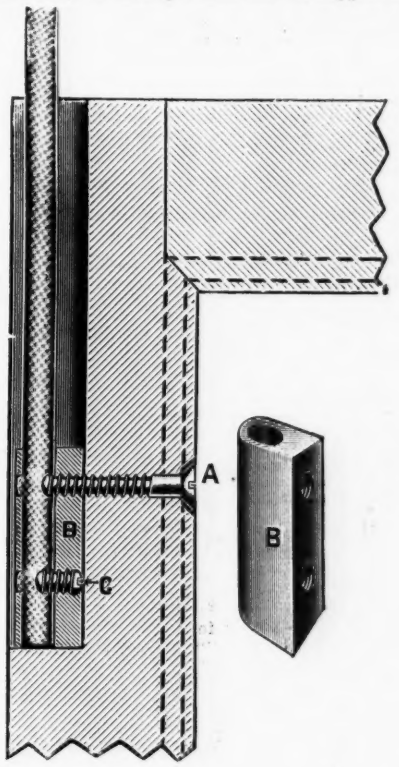
THE ROYAL ACADEMY.—The dates for sending in works to the Royal Academy this year are: for water-colours, miniatures, black-and-white drawings, engravings, etchings, architectural drawings, and all other works under glass—Thursday, March 28; for oil paintings—Saturday, March 30, and Tuesday, April 2; for sculpture—Wednesday, April 3. Time of receiving—from 7 A.M. to 10 P.M. on each day.

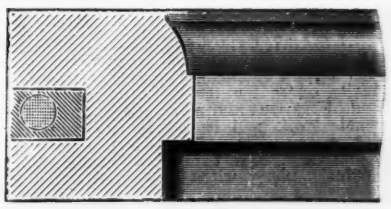
COMPENSATION CASE, MATLOCK BATH.—Mr. J. H. Townsend Green (of Messrs. Weatherall & Green) has assessed at 3,890*l.* the compensation to be paid in respect of the compulsory sale of about 1¼ acres of land having a frontage of 266 ft. to South-parade, Matlock Bath, and extending to the Derwent. The land is required by the Urban District Council for their project to erect a new pump-room and to acquire control of some of the thermal springs. Mr. Thomas's claim amounted to some 10,000*l.* in all, his experts, Mr. Walter Hunter, C.E., valuing the water at about 3,870*l.*, and Mr. H. H. Fuller and Mr. J. D. Wallis valuing the land at from 5,000*l.* to 6,000*l.*, having regard to the profits which the owner might derive from his own enterprise. Mr. H. Lloyd, K.C., appeared for the local authorities, and adduced the evidence of Mr. Frederick Fowler, Mr. Smith Denton, and Mr. Holmes, whose valuations amounted to a little more than 2,000*l.* Sir Edward Boyle, K.C., and Mr. Gurney Boyle represented the claimant.

FIRST GARDEN CITY (LTD.), LETCHWORTH.—The annual report embodies the audited accounts for the twelve months ended on September 30, which show an apparent loss of 5,575*l.* for the year, but no credit is taken for any increase in the value of the estate beyond the amount of actual outlay upon it. On the other hand, a most encouraging success is announced. The ground-rents created in the period amount to 1,110*l.*, or, at twenty-five years' purchase, a capital value of 27,750*l.*, and the aggregate value of allotted shares is 151,596*l.*, whilst substantial additional applications for shares are still being made. In the course of the year the directors resolved to issue further debentures for 25,000*l.*, raising the total to 45,000*l.* Up to the present time 16,300*l.* has been subscribed in respect of the previous issue, so that 9,200*l.* of the created debentures remain neither subscribed nor promised. The town has about 3,000 inhabitants; there are two banks, some twenty shops, a public hall, places of worship, schools, etc.

NORTHERN POLYTECHNIC INSTITUTE.—In his second lecture on "The Evolution of Architecture," at the Northern Polytechnic, Holloway, on Wednesday last, Mr. Hugh Stannus showed how the two divisions of Egypt—the upper or Nile Valley with its stone cliffs on the sides, and the lower or Delta, a swamp overgrown with reeds—influenced the two methods of building before the consolidation of the whole country under the XIth and XIIth dynasties produced one style for both divisions. He then demonstrated the origin of the Lotus capital and of the papyros capital, and the coalescence of these two designs in the XVIIIth dynasty, when, after the expulsion of the Hyksos from Lower Egypt, the King was able to call himself "Lord of the two Lands." The Palm capitals were further shown; and the evolution of the "Entablature" concluded an interesting lecture, which was fully illustrated by diagrams, lantern-slides, and sketches on the blackboard.

ATTACHMENT OF SASH CORDS.—Among little things that are done by habit in a crude kind of manner and not thought of is the attachment of sash cords to the window frame, which is usually done by nailing through, a method which involves taking off the bead and taking out the sash to repair the cord or fix a new one. Mr. W. H. Southern (Manchester) has patented the method shown in the accompanying illustration. By reference to this it will be seen that the cord lies in the usual groove in the side of the sash, but instead of being nailed into position the end of it is secured by a grub screw C in a small brass holder or block, which can be slipped into





place and then secured by the screw A, the head of which lies in a brass cup near the glass, and is readily accessible. The method of operation of removing a broken cord and replacing it by a new one is as follows:—The sash is raised to expose the pocket piece, which is taken out. The sash weight is then lifted out of the pocket, together with the piece of cord attached to it; the screw A is withdrawn and the block B lifted out of the groove by the remaining piece of broken cord, which is then withdrawn from the block. The new cord is then reeved round the pulley in the sash frame and tied to the weight, which is put into the pocket, and the opening is then closed. The block B is then put on to the other end of the cord, and the screw C forced home until it pinches the cord tight, and also forces a portion into the countersink at the opposite side of the block. It is then easy to lower the block into the groove into the sash, as shown in the engraving, and to secure it by the screw A. The improvement is a simple and very useful one, and we should expect to see it largely adopted.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, —.; Contracts, iv. vi. viii. x. Public Appointments, xxi.; Auction Sales, xxxii.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

*** It must be understood that the following paragraphs are printed as news, and not as advertisements: and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.

Competitions.

FEBRUARY 26.—**Stockton-on-Tees.**—HALL, ETC.—The St. George's Presbyterian Church Building Committee invite competitive designs for the erection of hall and class-rooms adjoining the church, costs not to exceed 1,500*l.*, including all architect's fees. Competitors must lodge designs with Mr. Alexander Livingston, Secretary, 24, Russell-street, Stockton, not later than February 26.

MARCH 3.—**Castleford.**—SECONDARY SCHOOL.—The Governors of Castleford Secondary Schools invite competitive designs from architects practising in the West Riding of Yorkshire for a dual Secondary School, etc., for 300 scholars, on a site in Healdfield-road, Castleford, and offer premiums of 50*l.* and 25*l.* respectively for the designs placed first and second by the assessor, Mr. Walter H. Brierley, F.S.A., F.R.I.B.A., architect, York, whose decision is to be final. Printed conditions and instructions, together with a plan of the site, can be obtained on written application to Mr. Alfred Wilson, Clerk to the Guardians, Station-road, Castleford, accompanied by a stamped addressed brief envelope, and a deposit of 10s. 6d. Designs are to be delivered on or before noon of March 3.

MARCH 15.—**Bishop Auckland.**—SECONDARY SCHOOL.—Durham County Education Authority invite competitive plans for a Secondary School at Bishop Auckland. The author of the selected plans will be employed to carry out the work at a commission of 5 per cent. A premium of 20*l.* and one of 10*l.* will be paid for the plans placed second and third respectively. An architect of standing will act as assessor. Plans, carriage paid, must be delivered to the Secretary not later than noon of March 15. A plan of the site, conditions of competition, and terms of employment can be obtained from Mr. J. A. L. Robson, Secretary for Higher Education, Shire Hall, Durham.

NO DATE.—**Ballinasloe.**—COTTAGES.—Plans and specifications wanted for twenty attendants' cottages, District Asylum, Ballinasloe. For all particulars apply to the Resident Medical Superintendent. First prize of 15*l.* given. Mr. J. St. L. Kirwan, Resident Medical Superintendent.

Contracts.

BUILDING.

FEBRUARY 2.—**Camelford.**—RESIDENCE.—The erection of a residence at Camelford for Mr. D. B. Harte, M.A. The drawings, specifications, and conditions may be seen at the office of Mr. Ernest Wise (Wise & Wise), Launceston, from whom all information may be obtained. Tenders, sealed and endorsed, must be sent to the architect not later than February 2.

FEBRUARY 4.—**Bangor.**—SCHOOLROOM.—The erection of new schoolroom for and adjoining the English Wesleyan Church, Bangor. Plans, etc., may be inspected at office of Mr. W. G. Williams, architect, 202, High-street, Bangor, between the hours of 9 a.m. and 5 p.m. Tenders to be sent on the form provided, sealed and endorsed "New Schoolroom," and delivered not later than 4 on February 4.

FEBRUARY 4.—**Ferryhill.**—SCHOOL.—A Primitive Methodist school, Deanbank, Ferryhill. Names for quantities to the architects, Messrs. Howdill & Howdill, A.R.I.B.A., 7, Oxford-row, Leeds, by February 4.

FEBRUARY 4.—**Glasgow.**—ALTERATIONS, ETC., TO PINKSTON POWER STATION.—The Corporation of Glasgow invite offers for the work in connexion with proposed alterations and additions to Power Station. The whole work will be let in one contract, and includes mason, brick, etc., steel, carpenter and joiner, plumber, and painter works. Each offerer must submit, along with his tender, a list of the sub-contractors he would propose to employ. Plans can be seen, and forms of tender obtained, on application to Mr. Jas. Dalrymple, General Manager, 46, Bath-street, Glasgow. Tenders, marked "Tramways: Tender for Alterations to Pinkston Power Station," must be lodged with Mr. A. W. Myles, Town Clerk, City Chambers, not later than 10 a.m. on February 4.

FEBRUARY 4.—**North Shields.**—STABLE.—Tynemouth Corporation invite tenders for the erection of sixteen-stall stable in the stable yard, Upper Toll-street, North Shields. Drawings may be seen, and copies of the bills of quantities and general conditions obtained, at the office of Mr. John F. Smillie, Borough Surveyor, Tynemouth, where sealed tenders, endorsed "Tender for Stables," are to be delivered not later than 12 noon on February 4.

FEBRUARY 4.—**Rawmarsh.**—CHURCH.—A Wesleyan Church at Rawmarsh. Names before February 4, to the architect, Mr. W. J. Hale, F.R.I.B.A., 13, St. James's-road, Sheffield.

FEBRUARY 4.—**Sheffield.**—ADDITIONS TO SCHOOL.—Sheffield Education Committee invite tenders for the whole of the works required in the erection of additions and alterations to the school and outbuildings in Mayfield, Fulwood, Sheffield. Names to the architects, Messrs. C. J. Innocent & Son, 22, High-street, Sheffield, on or before February 4, together with a deposit of 1*l.* 1s. for bill of quantities.

FEBRUARY 4.—**West Bromwich.**—SCHOOL BUILDINGS.—The Education Committee invite tenders for the erection of the Pupil Teachers' Centre and Day Secondary School Extension, in accordance with plans, specifications, etc., prepared by their architects (Messrs. Wood & Kendrick, High-street, West Bromwich). Applications for forms of tender, copies of quantities, etc., should be made on or before February 4, at the office of the architects, where plans may be seen and any further information obtained. A deposit of 1*l.* 1s. must be forwarded with the application for form of tender. Tenders must be forwarded in the endorsed envelope supplied for that purpose, and must be received on the date stated on the form of tender.

FEBRUARY 5.—**Belfast.**—WORKHOUSE IMPROVEMENTS.—Belfast Guardians invite proposals for (1) erecting fire escape exits and stairs; (2) forming an examination room and carrying out sundry alterations; (3) laying footbaths, curbing etc.; and (4) carrying out a drainage scheme at the Union Workhouse, in accordance with plans and specifications prepared by Messrs Young & Mackenzie, civil engineers, which can be seen at office of Mr. Joseph W. Robb, Clerk of the Union, Clerk's Office, Union Workhouse. Separate tenders, endorsed "Works," and numbered 1, 2, 3, 4, as the case may be, to be lodged in the tender-box, Board Room, before 12 o'clock noon on February 5.

FEBRUARY 5.—**Birmingham.**—ALTERATIONS, ETC., TO WAREHOUSES.—Sharpness New Docks and Gloucester and Birmingham Navigation Company invite tenders for alterations and additions to the warehouses and buildings, in the occupation of the Severn and Canal Carrying Company, at the Worcester Wharf, Birmingham. The drawings, specification, and quantities can be seen at the office of the Local Engineer of the Worcester and Birmingham Canal, Mr. W. F. Hobrough, Stoke Prior Wharf, near Stoke Works Station. Tenders are to be sent to Mr. Hubert Waddy, General Manager and Secretary, Dock Office, Gloucester, on or before February 5.

FEBRUARY 5.—**Craiglockhart.**—COTTAGE.—The Edinburgh and District Water Trustees invite tenders for the mason and brick, carpenter, joiner, plumber, slater, plaster, and cement works in connexion with cottage proposed to be erected at Firr Hill, Craiglockhart. Schedules of quantities may be had on application to Mr. Edward C. Carse, architect, 37, Frederick-street, Edinburgh, at whose office plans of the proposed cottage may be seen. Tenders, endorsed "Cottage at Firr Hill, Craiglockhart," must be lodged with Mr. William Boyd, W.S., Clerk to the Trust, Edinburgh and District Water Trust Offices, not later than February 5, at 10 a.m.

FEBRUARY 5.—**Great Yarmouth.**—COOKERY AND LAUNDRY CENTRE.—The Education Committee invite tenders from local tradesmen for the erection of a cookery and laundry centre, at No. 28, South-quay, Great Yarmouth. The plan and specification can be seen at the office of the Borough Surveyor, Town Hall, Great Yarmouth. Endorsed tenders to be addressed to Mr. F. W. Wroughton, Clerk to the Committee, 28, South-quay, Great Yarmouth, and delivered at the office of the Committee, No. 28, South-quay, Great Yarmouth, by noon on February 5.

FEBRUARY 6.—**Manchester.**—FOUNDATIONS.—The Commissioners of H.M. Works and Public Buildings invite tenders for foundations of new Sorting Office at Manchester. Drawings, specification, and a copy of the conditions and form of contract may be seen on application to Mr. Atlee, H.M. Office of Works, New Bridge-street, Manchester, to whom all applications should be made for permission to view the site. Bills of quantities and forms of tender may be obtained at the office of the Secretary on payment of 1*l.* 1s. Tenders must be delivered before 12 o'clock noon on February 6, addressed to the Secretary, H.M. Office of Works, etc., Storey's Gate, London, S.W., and endorsed "Tender for Manchester New Sorting Office, Foundations."

FEBRUARY 6.—**Rathdown.**—COTTAGES.—Rathdown No. 1 R.D.C. will, at their meeting on February 6, consider tenders for building nine single labourers' cottages, twenty-five double labourers' cottages, and four cottages in one block. Modified plans and specifications and tender forms for the works can be obtained from the Clerk to the R.D.C. on payment of 5s., and tenders are to be lodged in his office not later than 10 o'clock a.m. Mr. Patrick Cunniam, Clerk of the Council, Clerk's Office, Loughlinstown.

FEBRUARY 7.—**Crosskeys.**—ALTERATIONS, ETC., TO HOTEL.—For alterations and additions to the Tredegar Arms Hotel, Crosskeys, Mon., for Messrs. Lloyd & Yorath (Ltd). Quantities can be obtained, and drawings inspected, at offices of Messrs. Lansdowne & Griggs, architects, Metropolitan Bank-chambers, Newport. Tenders to be sent not later than 11 a.m., February 7.

FEBRUARY 7.—**Edinburgh.**—FOUNDATIONS.—The Commissioners of H.M. Works and Public Buildings invite tenders for the excavating, concrete, and asphalte work in connexion with the foundations for the Edinburgh General Post Office Extension. Drawings, specification, and a copy of the conditions and form of contract may be seen on application to Mr. W. T. Oldrieve, H.M. Office of Works, Edinburgh. Bills of quantities and forms of tender may be obtained at H.M. Office of Works, Edinburgh, on payment of 1*l.* 1s. Tenders must be delivered on or before February 7, addressed to the Secretary, H.M. Office of Works, etc., Storey's Gate, London, S.W., and endorsed "Tender for Edinburgh General Post Office, Extension."

FEBRUARY 7.—**Sheffield.**—ALTERATIONS AND ADDITIONS AT THE FIRE-STATION, ROCKINGHAM-STREET.—The watch Committee invite tenders for the above work. Quantities and plans may be obtained at the office of Mr. Charles F. Wike, C.E., City Surveyor, Town Hall, Sheffield, on payment of 10s. (ten shillings). Tenders, endorsed "Alterations, Rockingham-street Fire-station," are to be sent in not later than 9 a.m. on February 7, addressed to "The Chairman and Members of the Watch Committee, City Surveyor's Office, Town Hall, Sheffield."

FEBRUARY 8.—**Warrington.**—SCHOOL.—Warrington Education Committee (Sites and Buildings Committee) invite tenders for the erection of a public elementary school, to be known at the "Bolton" Council School. Bills of quantities, etc., may be obtained from the Education Office on payment of 1*l.* 1s. The tenders must be delivered at the Education Office, in the envelope suplied (which must be securely sealed with wax), not later than 12 o'clock noon on February 8.

FEBRUARY 9.—**Ammanford.**—SCHOOL.—Carmarthenshire C.C. Education Committee invite tenders for the erection of a new Council School at Ammanford to accommodate 500 children. Names to Mr. W. D. Jenkins, F.S.I., M.S.A., County Education Architect, Carmarthen, on or before February 9, together with a deposit of 3*l.* 3s.

FEBRUARY 9.—**Earl Stonham.**—SCHOOL ADDITIONS.—The erection of a new class room and other alterations and additions to Earl Stonham V. Schools for the Managers of the School. Plans and specification may be seen, and bills of quantities obtained, at office of Mr. Henry Geo. Bishop, architect, 6, Bury-street, Stowmarket, on payment of a deposit of 1*l.* 1s., which will be returned on receipt of a bonâ fide tender. Sealed tenders to be sent to the Rev. E. G. Ashwin, M.A., Earl Stonham Rectory, Stowmarket, on or before February 9, sealed, and endorsed "Tender for New Class Room, Earl Stonham Schools."

FEBRUARY 9.—**St. Annes-on-the-Sea.**—CHURCH ENLARGEMENT.—The enlargement of Wesleyan Church and Schools, St. Annes-on-the-Sea. For quantities apply from February 1 to February 9, to Messrs. Walker & Collinson, architects, Cheapside-chambers, Bradford.

FEBRUARY 11.—**Great Wyrley.**—SCHOOL.—Staffordshire Education Committee invite tenders for Ladywood new Council School, Great Wyrley (accommodation, 350). Apply to Mr. Graham Balfour, Director of Education, County Education Offices, Stafford, on or before February 11. Quantities will be supplied, for which a deposit of 1*l.* 1s. will be charged.

* FEBRUARY 11.—**Londonderry.**—SCHOOL.—The Department of Agriculture and Technical Instruction for Ireland invite tenders for erection of a Higher School of Domestic Economy, in connexion with Victoria High School, Londonderry, in accordance with drawings and specifications by Mr. M. H. Robinson, C.E., M.R.I.A.I., M.S.I., Richmond-street, Londonderry, which may be seen at the architect's office and at the offices of the Department. Tenders, sealed and endorsed, to be addressed The Secretary, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion-st, Dublin, and delivered not later than February 11.

* FEBRUARY 12.—**Ilford.**—REFRESHMENT KIOSK.—The Ilford U.D.C. invite tenders for a refreshment kiosk in South Park, Ilford. Copies of plans, specification, forms of tender, etc., may be obtained on and after February 6 of Mr H. Shaw, Engineer and Surveyor, Town Hall, Ilford, on payment of 2*l.* 2s. Sealed tenders, on the printed forms supplied, endorsed "Tender for Refreshment Kiosk, South Park," to be delivered to Mr. John W. Benton, Council's Clerk, Town Hall, Ilford, before noon, February 12.

FEBRUARY 12.—**Leeds.**—BREWHOUSE, ETC.—Leeds Unhealthy Areas Committee invite tenders for the erection of brewhouse and conveniences, etc., in Hardisty's Yard, off West-street, Leeds. Plans may be seen, and bills of quantities obtained, at the office of Mr. G. W. Atkinson, architect, 1, Mark-lane, Leeds, on payment of deposit of 10s. 6d. Tenders on form supplied, and properly endorsed, "Brewhouse, Hardisty's Yard," must be received at the Town Clerk's Office not later than 10 a.m. on February 12.

FEBRUARY 13.—**Macclesfield.**—LAUNDRY.—The Managers of the Macclesfield Certified Industrial School invite tenders for the erection of a new laundry, in Parker-stret. Bills of quantities and particulars may be obtained at office of Mr. Jabez Wright, architect, 27, King Edward-street, Macclesfield, on payment of a deposit of 10s. Sealed tenders, endorsed "Tender for Laundry," to be addressed to the Chairman of Committee of Managers, and must be delivered at the Industrial School, Brook-street, not later than 2 o'clock p.m. on February 13.

FEBRUARY 14.—**Aberffraw.**—SCHOOL WORKS.—The Anglesey Education Committee invite tenders for the following, viz.:—(*a*) Additions and alterations to the Aberffraw Council School; (*b*) additions and alterations to the Llanddeusant Council School; (*c*) a new cottage at Rhosucha, near Llangefni. Plans and specifications may be inspected at the Aberffraw and Llanddeusant Council Schools respectively, and at office of Mr. Jos. Owen, F.R.I.B.A., County Architect, Menai Bridge and Holyhead. Tenders, under seal and on forms, which will be supplied on application, to be sent in to Mr. R. H. Williams, Llangefni, by 9 a.m. on February 14.

FEBRUARY 15.—**Surbiton.**—ISOLATION HOSPITAL.—The Isolation Hospital Board invite tenders for new ward pavilion and other additions and alterations at the Tolworth Isolation Hospital, according to drawings and specification prepared by Mr. W. H. Woodroffe, architect, 57, Lincoln's Inn-fields, at whose office plans, specification, and conditions of contract can be inspected, and bills of quantities obtained, on payment of 5*l.* 5s. Tenders to be delivered to Mr. Jas. Edgell, Clerk to the Board, Union Offices, Norbiton, Kingston-on-Thames, on or before February 15.

FEBRUARY 16.—**Coedpenmaen.**—READING-ROOM, COTTAGE, ETC.—The erection of a reading-room, caretaker's cottage, etc., on site at Coedpenmaen, near Pontypridd, for the Workmen's Committee of the Albion Colliery. Plans and specification may be seen at the offices of Mr. Philip John Jones, architect, Cilfynydd, near Pontypridd, and Tonyrefail, to whom sealed or endorsed tenders are to be delivered before February 16.

FEBRUARY 16.—**Manchester.**—ENGINE AND BOILER HOUSES.—Manchester Waterworks Committee invite tenders for the erection of engine and boiler houses, offices, workshops, etc., for a hydraulic pumping station in Water-street, Manchester. Drawings may be seen, and printed specification and quantities, form of tender, and all other information obtained, on application to the City Architect, Town Hall, Manchester, on payment of 1*l.* 1s. Sealed tenders, enclosed in the official envelope, to be forwarded to the Chairman of the Waterworks Company, at the Town Hall, not later than February 16.

FEBRUARY 16.—**Westruther.**—SCHOOLMASTER'S HOUSE.—The various works in connexion with the erection of schoolmaster's house, at Westruther, for Westruther School Board. Plans, etc., may be seen, and schedule of quantities obtained, on application to the architect, Mr. T. R. Atkinson, Earlston. Tenders, endorsed "School House," to be sent to the Clerk, Mr. George Mill, Hyndsidehill, Lauder, on or before February 16.

★ FEBRUARY 18.—**Coventry.**—WORKSHOPS, ETC.—The Gas Committee of the Coventry Corporation invite tenders for the erection of buildings at their Foleshill works. The drawings may be seen, and specification, with form of tender and bills of quantities obtained, on and after February 4, on payment of 1*l.* 1s. Sealed tenders, addressed to Chairman of the Gas Committee, Gas Works, Coventry, endorsed "Tender for Workshops, etc.," must be delivered not later than 9 a.m., February 18.

FEBRUARY 20.—**Sunderland.**—SCHOOL EXTENSION.—The Council of the County Borough of Sunderland invite tenders for proposed extension to infants' department, Hudson-road Schools. Drawings may be seen, and specifications, schedule of quantities, and form of tender obtained, at the office of the Borough Engineer, Town Hall. Sealed tenders, addressed "To the Chairman of the Education Works Sub-Committee, Town Hall, Sunderland," and endorsed "Tender for Extension to Infants' Department, Hudson-road School," must be delivered at office of Mr. Fras. M. Bowey, Town Clerk, Town Hall, Sunderland, before 12 at noon on February 20.

★ FEBRUARY 21.—**Nottingham.**—P.O. EXTENSIONS.—The Commissioners of H.M. Works, etc., invite tenders for the enlargement of the Post Office at Nottingham. Drawings, specification, and a copy of the conditions and form of contract may be seen on application at the Head P.O. at Nottingham. Bills of quantities and forms of tender may be obtained at H.M. Office of Works, etc., Storey's Gate, S.W., on payment of 1*l.* 1s. Tenders to be delivered before noon, February 21, addressed to The Secretary, H.M. Office of Works, Storey's Gate, S.W., and endorsed "Tender for Nottingham Post Office Enlargement."

FEBRUARY 23.—**Matterdale.**—SCHOOL.—Cumberland Education Committee invite tenders for erecting new elementary school house at Matterdale. Drawings can be seen, and specifications at the office of the architect, Mr. Joseph Forster, 13, Earl-street, Carlisle, or at the Town Hall, Penrith, on application to Mr. G. Wainwright, between the hours of 10 a.m. and 5 p.m. Tenders to be delivered at the office of the architect at or before 1 p.m. on February 23.

NO DATE.—**Haydon Bridge.**—HOUSES.—The erection of a pair of semi-detached houses, Haydon Bridge, for Mr. John Bell. Names and addresses to Messrs. Liddle & Browne, architects, Prudential-buildings, Mosley-street, Newcastle-on-Tyne, who will supply quantities to such applicants only.

NO DATE.—**Heckington.**—ADDITIONS TO HOUSE.—For alterations and additions to a dwelling-house at Heckington, in the county of Lincoln. Apply to Messrs. Herbert Walker & Son, architects, King-street, Nottingham, and Southgate, Sleaford. Quantities (when ready) will be forwarded on deposit of 2*l.*

NO DATE.—**Hillsborough.**—SCHOOL.—The whole or any part of new Primitive Methodist Sunday Schools, Hillsborough. Quantities and all particulars on application to Mr. Hy. Harper, architect, 54, Long-row, Nottingham.

NO DATE.—**Huddersfield.**—RENOVATION OF CHURCH.—For renovations to Highfield Congregational Church, Huddersfield. The contracts will be let to five contractors, who will undertake the following work:—(1) Excavating, bricklaying, masonry, plastering, carpentry, and plumbing; (2) painting; (3) special joinery (including seating and rostrum); (4) electric lighting; (5) heating. For particulars apply to Messrs. John Wills & Sons, architects, St. Peter's Church Yard, Derby.

NO DATE.—**North Shields.**—INFIRMARY WING.—For new wing at the Tynemouth Victoria Jubilee Infirmary, Spring Gardens, North Shields. A copy of the bills of quantities supplied on payment of 1*l.* 1s., on application to Mr. John W. Meadows, surveyor, etc., 43, Howard-street, North Shields.

ENGINEERING, IRON, AND STEEL.

FEBRUARY 4.—**Glasgow.**—BRIDGE WORK.—The Directors of the Caledonian Railway Company invite tenders for the works to be executed in the renewal of the superstructure of the underbridge on the Cleland and Mid-Calder Line at four miles ten chains, and the overbridge on the Hamilton and Ferniegair Line at six miles fourteen and a half chains. Drawings may be seen at the offices of the Company's District Engineer, 3, Germiston-street, Glasgow, where copies of the specification and schedule may be obtained on payment of 2*l.* 2s. Sealed tenders, endorsed "Tender for Steel Work Required in the Renewal of the Superstructure of Two Bridges on Western District," to be lodged with Mr. J. Blackburn, Secretary, Caledonian Railway Company's Offices, 302, Buchanan-street, Glasgow, on or before February 4.

FEBRUARY 8.—**Huddersfield.**—TRAMWAY MATERIAL.—The Corporation of Huddersfield invite tenders for the supply and delivery at Huddersfield of about 140 tons of steel tramway rails (girder section), with fishplates, tierods, 1-in. bolts, points and crossings, copper bonds, etc. Plans, specifications, and general conditions may be seen, and bills of quantities and forms of tender obtained, on application at the offices of the Borough Engineer and Surveyor, 1, Peel-street, Huddersfield. Sealed tenders, endorsed "Tender for Tramway Material," signed in the handwriting of the tenderer or his agent, and addressed "Town Clerk, Town Hall, Huddersfield," must reach him not later than 9 a.m. on February 8.

FEBRUARY 8.—**Yardley.**—BRIDGE.—Worcester Highways and Bridges Committee invite tenders for the rebuilding of Tyseley Bridge, situate on the Warwick main road, in the Parish of Yardley. Drawings and specifications may be seen on application to Mr. J. H. Garrett, County Road Surveyor, Shire Hall, Worcester. Sealed tenders, endorsed "Tyseley Bridge," must be delivered at office of Surveyor not later than February 8.

FEBRUARY 9.—**Manchester.**—LOCOMOTIVES, ETC.—The Rivers Committee invite tenders for the supply to the Davyhulme Sewage Works, Urmston, of the following:—(*a*) Two locomotives, 3-ft. gauge (new or second-hand); (*b*) forty steel tipping waggons (new); (*c*) vertical steam engine (new or second-hand). Specifications and particulars may be obtained on application to the Secretary of the Rivers Department, Town Hall, Manchester, and tenders should be delivered not later than 10 a.m. on February 9.

FEBRUARY 11.—**Manchester.**—IRON CASTINGS.—Manchester Corporation invite tenders for the supply of ventilating grids and other castings that may be required in connexion with drainage work for the twelve months ending March 31, 1908. Samples may be seen, and forms of tender obtained, on application to Mr. H. Prescott, Manager of the House Drainage Department. Sealed tenders, on the forms supplied, must be addressed to the Chairman of the House Drainage Sub-Committee, and endorsed "Tender for Ventilating Grids," and will be received at the House Drainage Department not later than 10 o'clock on February 11.

FEBRUARY 11.—**Warrington.**—CONDENSERS.—Warrington Sanitary Works Committee invite tenders for the supply and delivery of two cast-iron condensers for Longford Depôt. Full particulars may be obtained from Mr. R. Wilson, Manager, Longford Depôt, Warrington. Tenders, in securely fastened envelopes, endorsed "Tender for Condensers," and addressed "The Chairman, Sanitary Works Committee, Town Hall, Warrington," to be delivered not later than February 11.

FEBRUARY 12.—**Burma.**—BRIDGE, ETC.—The Board of Directors of the Burma Railways Company, Ltd., invite tenders for the supply of a double leaf through Scherzer rolling lift bridge, 220 ft. centre to centre of main bearings, with two adjacent approach spans, 160 ft. centre to centre of bearings. Total approximate weight, 607 tons. Specifications and forms of tender can be obtained at the Company's Offices, 199, Gresham House, E.C. For each specification a fee of 2*l.* will be charged, which will not be returned. Tenders, enclosed in sealed envelopes, and endorsed "Tender for Scherzer Rolling Lift Bridge," must be delivered not later than February 12. Mr. A. G. Begbie, Managing Director.

FEBRUARY 12.—**Crumpsall, Manchester.**—BRIDGE WORKS.—Manchester Corporation Improvement and Buildings Committee invite tenders for the reconstruction of Waterloo-street Bridge, over Mill Goyt, Lower Crumpsall. Drawing may be seen, and specification, bill of quantities, and form of tender obtained, on application at the City Surveyor's Office, Town Hall, Manchester, on payment to the City Treasurer of 2*l.* 2s. All cheques or postal orders are to be made payable to the order of "The Corporation of Manchester." Tenders, enclosed in the official envelope and addressed to the Chairman of the Improvement, etc., Committee, to be delivered at the City Surveyor's Office not later than 10 a.m. on February 12.

FEBRUARY 12.—**London.**—LIFT BRIDGE.—The Board of Directors of the Burma Railways Company, Ltd., invite tenders for the supply of a double-leaf through Scherzer rolling lift bridge, 220 ft. centre to centre of main bearings, with two adjacent approach spans, 160 ft. centre to centre of bearings. Total approximate weight, 607 tons. Specifications and forms of tender can be obtained at the Company's Offices, 199, Gresham-house, E.C. For each specification a fee of 2*l.* will be charged, which will not be returned. Tenders, enclosed in sealed envelopes, and endorsed "Tender for Scherzer Rolling Lift Bridge," must be delivered not later than February 12.

FEBRUARY 12.—**Manchester.**—BRIDGE RECONSTRUCTION.—Manchester Corporation Improvement and Buildings Committee invite tenders for the reconstruction of Boardman-street Bridge, over the River Medlock. Drawing may be seen, and specification, bill of quantities, and form of tender obtained, on application at the City Surveyor's Office, Town Hall, Manchester, on payment to the City Treasurer of 2*l.* 2s. All cheques or postal orders are to be made payable to the order of "The Corporation of Manchester." Tenders, enclosed in the official envelope, and addressed to the Chairman of the Improvement, etc., Committee, to be delivered at the City Surveyor's Office not later than 10 a.m. on February 12.

FEBRUARY 16.—**Leeds.**—RAILS, ETC.—The Committee of the Leeds City Tramways invite tenders for the supply of 1,000 tons of rolled-steel tramway rails and 25 tons of tie-bars. Tenders, marked "Tramways—Tenders for Rails," or "Tie-bars," should be delivered to Mr. R. E. Fox, Town Clerk, Leeds, not later than February 16. Specifications, with full particulars, can be had on application to Mr. J. B. Hamilton, General Manager, City-square, Leeds.

FEBRUARY 18.—**Edinburgh.**—PLANT.—Edinburgh Corporation invite tenders for the following work in connexion with their Electricity Supply Station at M'Donald-road. Specification No. 19.—Condensing plant. The plant is required to condense the exhaust steam from 7,000 h.p. of steam plant, which will be of the exhaust steam turbine type. Copies of the specification, etc., can be obtained from the engineer, Dewar-place, Edinburgh, upon payment of a deposit of 2*l.* 2s. The specification, etc., may be seen at, but not obtained from, the office of Sir Alexander Kennedy, 17, Victoria-street, London, S.W. Tenders, on the prescribed form, enclosed in sealed envelopes and endorsed on the outside "Electricity Supply, Tender for Specification No. 19," must be delivered at the office of Mr. Thomas Hunter, W.S., Town Clerk, City Chambers, Edinburgh, not later than February 18.

FEBRUARY 18.—**Edinburgh.**—TURBINES, ETC.—Edinburgh Corporation invite tenders for the following work in connexion with their Electricity Supply Station at M'Donald-road. Specification No. 20.—Exhaust steam turbines and direct-current generators. The plant required consists of two exhaust steam turbines, each direct-coupled to a direct-current generator, each turbine to work with the exhaust steam from two high-speed 1,200 i.h.p. triple-expansion engines. Copies of the specification, etc., can be obtained from the engineer, Dewar-place, Edinburgh, upon payment of a deposit of 2*l.* 2s. The specification, general conditions, and drawings may be seen at, but not obtained from, the office of Sir Alexander Kennedy, 17, Victoria-street, London, S.W. Tenders, on the prescribed form, enclosed in sealed envelopes, and endorsed on the outside "Electricity Supply, Tender for Specification No. 20," must be delivered at the office of Mr. Thomas Hunter, W.S., Town Clerk, City Chambers, Edinburgh, not later than February 18.

FEBRUARY 20.—**Great Amwell.**—COAL BAYS.—The Metropolitan Water Board invite tenders for the construction of coal bays at Amwell Marsh Pumping Station, Great Amwell, Herts. Forms of tender and contract, with specification, may be obtained on application to the engineer, Rosebery-avenue, E.C., on production of an official receipt for the sum of 2*l.*, which sum must first be deposited with the Comptroller at the Board's Central Offices, Savoy-court, Strand, W.C. Such payments and applications must be made between the hours of 10 and 4 (except on Thursdays and Saturdays) on and after February 4. Tenders, enclosed in sealed envelopes, addressed to the Clerk of the Board, Metropolitan Water Board, Savoy-court, Strand, W.C., and endorsed "Tender for Coal Bays, Amwell Marsh," must be delivered at the Offices of the Board not later than 10 a.m. on February 20.

FEBRUARY 23.—**Harrogate.**—LIGHT RAILWAY.—Harrogate Gas Company Directors invite tenders for the construction of a light railway, 2-ft. gauge, about one and a half miles in length (700 yds. of which is in tunnel and cut and cover), together with the necessary siding accommodation, bridge, etc., extending from the Bilton siding of the North-Eastern Railway Company to their gasworks in Ripon-road in the Borough of Harrogate. Copies of the specification and bills of quantities can be obtained at the office of the engineer on payment of 3*l.* 3s. Plans, sections, and all necessary information can be seen or obtained at the office of the engineer, Mr. Edward Wilson Dixon, M.Inst.C.E., East-parade, Leeds, or by appointment at 1A, Cambridge-crescent, Harrogate, up to 5 p.m. on February 15. Sealed tenders, on the forms supplied, and endorsed "Light Railway," to be sent to Mr. Harry Wilkinson, Secretary and General Manager, Gas Offices, James-street, Harrogate, not later than 10 a.m. on February 23.

FEBRUARY 23.—**Harrogate.**—LOCOMOTIVES.—Harrogate Gas Company Directors invite tenders for the supply and delivery of a 2-ft. gauge locomotive (approximate weight, 16 tons). General conditions and all other necessary information can be obtained on application to the engineer, Mr. Edward Wilson Dixon, M.Inst.C.E., 3, East-parade, Leeds, up to 5 p.m. on February 15. Sealed tenders, accompanied with complete specification and blue print, to be sent to Mr. Harry Wilkinson, Secretary and General Manager, Gas Offices, James-street, Harrogate, not later than 10 a.m. on February 23, endorsed "Locomotive."

FEBRUARY 23.—**Harrogate.**—WAGGONS.—Harrogate Gas Company Directors invite tenders for the supply and delivery at their North-Eastern Railway Bilton sidings, Harrogate, of the following:—Six 2-ft. gauge bottom-discharge coal waggons of 6¾ tons capacity; two 2-ft. gauge side-discharge coal waggons of 6¾ tons capacity; four 2-ft. gauge bolster waggons for supporting circular tar tanks. General conditions and all other necessary information can be obtained on application to the engineer, Mr. Edward Wilson Dixon, M.Inst.C.E., 3, East-parade, Leeds, up to 5 p.m. on February 15. Sealed tenders, endorsed "Waggons," to be sent in to Mr. Harry Wilkinson, Secretary and General Manager, Gas Offices, James-street, Harrogate, not later than 10 a.m. on February 23.

FEBRUARY 23.—**Harrogate.**—WEIGHBRIDGE.—Harrogate Gas Company Directors invite tenders for the supply and delivery of a weighbridge in connexion with the intended light railway. All necessary information can be obtained at the office of the engineer, Mr. Edward Wilson Dixon, M.Inst.C.E., 3, East Parade, Leeds, up to 5 p.m., on February 15. Sealed tenders, accompanied with complete specification, etc., to be sent to Mr. Harry Wilkinson, Secretary and General Manager, Gas Offices, James-street, Harrogate, not later than 10 a.m. on February 23, endorsed "Weighbridge."

MARCH 18.—**Copenhagen.**—TURBO-ALTERNATORS, ETC.—The Corporation of Copenhagen invite tenders for the delivery of two steam turbine alternators (3 Ph.), each 2,500 KW., etc. Specification and conditions of contract may be had on application to Elektrisk Station, Gothersgade, 30, Copenhagen K, on payment of 30kr. Tenders must be sent to Direktoren for Kôbenhavns Belysningsvaesen, Raadhuset, Kobenhavn B, not later than 12 o'clock noon, March 18.

NO DATE.—**Birmingham.**—MOTOR WORK.—Firms open to tender for finished parts in large quantities. Letters only in first instance to Mr. Blumfield, 498, Moseley-road, Birmingham.

MISCELLANEOUS.

FEBRUARY 4.—**Birkenhead.**—STREET WATERING, ETC.—The Corporation of Birkenhead invite tenders for supplying any horses and drivers that may be required for hauling the Corporation water carts employed in connexion with the watering of the streets and roads, and for providing any horses, drivers,

and carts that may be required for removing the scavenging scrapings and sweepings from the surface of the streets and roads within the borough for a period of one year, commencing on April 1, 1907. Also for providing any horses, drivers, carts, floats, and lorries that may be required for performing the necessary team work in connexion with the repair and maintenance of the roads and sewers within the Borough for the same period. For the purpose of this contract the Borough will be divided into four districts, and the contractors may tender for all or any of the districts. Specifications may be seen, and further information and forms of tender obtained, at the office of Mr. Charles Brownridge, M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Birkenhead. Tenders, upon the printed forms supplied, sealed, and endorsed "Tender for Street Watering," "Tender for Scavenging Team Work," or "Tender for General Team Work," as the case may be, must be sent in to Mr. Alfred Gill, Town Clerk, Town Hall, Birkenhead, not later than 5 o'clock in the afternoon of February 4.

FEBRUARY 4.—**Dundee.**—ROAD ROLLER.—The Dundee T.C. invite tenders for a 10-ton steam road roller. Tenders, endorsed "Tender for Steam Road Roller," with specification, to be lodged with Mr. Jas. Thomson, Burgh Engineer, 91, Commercial-street, Dundee, not later than 12 o'clock noon on February 4.

FEBRUARY 4.—**Eton.**—FURNITURE.—Eton Guardians invite tenders for supplying the new infirmary at Slough with the undermentioned articles, according to samples to be seen at the Workhouse. (2) Ironmongery; (3) joinery; (4) blinds and fittings. Tenders must be forwarded on or before February 4, at 10 o'clock a.m., to Mr. R. H. Barrett, Clerk, Slough. The number of articles required and all other information will be supplied on application to the Master of the Workhouse.

FEBRUARY 4.—**Rowlston.**—RIFLE RANGE.—For the earth and concrete work, drainage, etc., in the construction of a target gallery, stop butt, etc., at the proposed new rifle range at Rowlston, near Hornsea, for Colonel A. M. Jackson, commanding the 1st Vol. Battalion East Yorkshire Regiment, Hull. The drawings, etc., may be seen, and bills of quantities obtained, at the offices of Mr. Arthur Easton, engineer and surveyor, 7, Land-of-Green-Ginger, Hull, on payment of a deposit of 1*l.* Whole tenders, sealed and endorsed "Tender for Rifle Range," to be delivered to engineer not later than 12 o'clock noon on February 4.

FEBRUARY 4.—**Stanwix.**—SCAVENGING.—Carlisle R.D.C. invite tenders for twelve months, from February 8, 1907, for the removal of ashes in the Township of Stanwix, the tenderer to provide a tip for the same. The tender to include the watering of the roads for the season 1907, at per water cart load distributed. Water cart supplied. Tenders to be left at 7, Victoria-place, Carlisle, not later than February 4.

FEBRUARY 4.—**Thrybergh.**—SCHOOL FURNITURE.—West Riding C.C. Education Department invite tenders for furniture required at Thrybergh New Provided School. Full particulars may be obtained from the Education Department (Elementary Branch), County Hall, Wakefield. Tenders must reach the County Hall not later than 9 a.m., February 4.

FEBRUARY 4.—**Waterloo-with-Seaforth.**—ROLLER.—The U.D.C. of Waterloo-with-Seaforth invite tenders for a new 10-ton steam road roller, in place of an existing one, for which an allowance must be made. Further particulars may be obtained on application to Mr. F. Spencer Yates, A.M.Inst.C.E., the Surveyor to the Council. Tenders, endorsed "Steam Road Roller," addressed to the Chairman of the General Purposes Committee, are to be delivered at the Town Hall, Waterloo, not later than 12 o'clock at noon on February 4.

FEBRUARY 5.—**Sandbach.**—SCAVENGING.—Sandbach U.D.C. invite tenders for nightsoil per tub. The contractor to have the privilege of providing a team at 7*s.* a day for scavenging purposes. Particulars and conditions may be obtained from the surveyor. Tenders to be sent in to Mr. A. E. Stringer, Clerk, on or before February 5.

FEBRUARY 7.—**Blaydon.**—SCAVENGING.—Blaydon U.D.C. invite tenders for the removal and disposal of scuttle ashes, contents of ashpits, house refuse, etc., at Rowlands Gill, Smailes Estate, and Lintzford. Specification, form of tender, and full particulars may be obtained from Mr. Robert Biggins, Sanitary Inspector, at the Offices of the Council, Blaydon-on-Tyne. Sealed tenders, endorsed "Tender for Scavenging Contract," are to be delivered to Mr. Henry Dalton, Clerk, Blaydon-on-Tyne, before noon on February 7, and must be on the form provided by the Council.

FEBRUARY 7.—**Slough.**—PUBLIC LIGHTING.—The U.D.C. of Slough invite tenders for lighting, etc., of the public lamps within their district, by gas or otherwise, in accordance with a specification prepared by the Surveyor to the Council, copies of which may be obtained at his office, 1, Mackenzie-street, Slough. The tenders to state a price per lamp. Sealed tenders, endorsed "Public Lighting," and addressed "The Chairman of the Lighting Committee," to be delivered to Mr. G. H. Charsley, Clerk, 11, Mackenzie-street, Slough, by 4 o'clock p.m. on February 7.

FEBRUARY 7.—**West Ham.**—DISINFECTANTS.—West Ham Education Committee invite tenders for the supply of disinfectants for use in the schools under the control of the Council. Forms of tender and further particulars may be obtained at the Town Clerk's Office, 95, The Grove, Stratford, E. Tenders for these contracts (in the envelopes supplied) must be delivered at office of Mr. Fred. E. Hilleary, Town Clerk, Education Department, 95, The Grove, Stratford, E., before noon on February 7, either by hand, between the hours of 10 a.m. and 4 p.m. (10 a.m. and 12.30 p.m. on Saturdays), or by registered post.

FEBRUARY 8.—**Dover.**—OILS, ETC.—Sealed tenders for the supply of oils (mineral, burning, oil engine fuel, colza, and crude creosote), for the period of twelve months from April 1, 1907, at the various stations in the Dover district, Eastern Command, will be received at the Headquarter Office, Guildford Battery, Dover, until 12 o'clock noon on February 8. Forms of tender, with list of stations and approximate quantities, can be obtained on application to the Officer Commanding, Army Service Corps.

FEBRUARY 8.—**Downham.**—TEAM LABOUR.—Downham R.D.C. invite tenders for team labour for the year ending March 31, 1908. Forms of tender can be obtained of Mr. J. S. Parrott, District Surveyor, Downham Market. Tenders must be sent to Mr. Harry Wayman, Clerk to the Council, Union Offices, Downham Market, not later than February 8.

FEBRUARY 9.—**Eccles.**—ELECTRIC LIGHTING.—The Eccles Education Committee invite tenders for the supply of electric-light wiring, fittings, switches, etc., in the Lewis-street Schools, in accordance with the specification prepared by Mr. H. W. Angus, Borough Electrical Engineer. Copy of general conditions, etc., can be obtained from Mr. Edwin Parkes, Town Clerk, Town Hall, Eccles, on payment of a deposit of 10*s.* 6*d.* Sealed tenders to be delivered in the official envelope to the Clerk not later than noon on February 9.

✱ FEBRUARY 11.—**Hendon.**—FENCING.—The Hendon U.D.C. invite tenders for about 800 yds. of wrought iron unclimable fencing, fixed complete at their Sewage Outfall Works, Renter's-lane, Hendon, N.W. Forms of tender are obtainable of the Council's Engineer, Council Offices, Hendon, N.W. Tenders to be addressed to the Chairman of the Council, and endorsed "Tender for Fencing," to be delivered to the Clerk to the Council not later than 5 p.m., February 11.

FEBRUARY 15.—**Claypole.**—CARTING.—The R.D.C. of Claypole invite tenders for the carting of about 6,500 tons of granite and slag from the following railway stations, viz.:—Ancaster, Honington, Sedgebrook, Barkstone, Navenby, Newark, Claypole, Leadenham, Gotham, Caythorpe, Hougham, Swinderby, Collingham, and Harmston, to the various highways in the district on which material may be used. Form of tender, showing the quantity of material for each parish and the station from which it is to be carted, may be obtained on application to the Surveyor, Mr. F. C. Meyrick, Syston, Grantham. Tenders, marked on the cover "Tender for Team Labour," to be sent to Mr. A. J. Franks, Clerk, Union Offices, 27, Lombard-street, Newark, not later than February 15.

✱ FEBRUARY 15.—**Southampton.**—MAP PRESSES AND TRAYS.—The Director-General, Ordnance Survey, is prepared to receive applications from firms willing to tender for the supply of map presses and trays. Applications for form of tender and specification to be made to the Officer in Charge of Stores, Ordnance Survey Office, Southampton. All tenders must be submitted before noon, February 15.

FEBRUARY 23.—**Beverley.**—TEAM LABOUR.—East Riding C.C. Highways and Bridges Committee invite tenders for the carting of about 6,000 tons of stone from the several railway stations and wharfs to the various parishes in the Riding. Conditions, forms of tender, and further particulars may be obtained on application to the County Surveyor or to the Road Foreman. Tenders, endorsed "Team Labour," to be sent to Mr. John Bickersteth, Clerk of the Council, County Hall, Beverley, at Beverley, on or before February 23.

NO DATE.—**Bramley.**—BOWLING GREEN.—The formation of bowling green at the Cardigan Arms, Bramley, for Bentley's Yorkshire Breweries (Ltd.). Apply Mr. B. Wood Higgins, architect and surveyor, Ouiton.

NO DATE.—**Bridlington.**—WIRING.—Wiring the new theatre and opera house, at the Spa and Gardens, Bridlington. Specification on application to Mr. H. Hague, Manager, which must be accompanied with 2*l.* 2*s.* deposit. Tenders to be endorsed "Theatre Tenders."

NO DATE.—**Cardiff.**—SINKING PIT.—Tenders wanted for sinking pit from No. 2 Rhondda Seam to Abergorki Seam, 16 ft. in the clear. Particulars, apply J. 80, *Western Mail*, Cardiff.

PAINTING, etc.

FEBRUARY 4.—**Sherburn.**—PAINTING.—Painting of the exterior of the Small-pox Hospital, Sherburn. To be received by Mr. Geo. A. Bromet, Clerk to the Joint Committee, 16, Park-row, Leeds, on or before February 4.

FEBRUARY 5.—**Ilkley.**—PAINTING, ETC.—The House Committee of Ilkley Hospital and Convalescent Home invite tenders for painting, white and colour washing, at the Institution. Specifications may be had on application. Tenders, marked "Painting, etc.," to be sent to Mr. Arthur B. Lloyd, Secretary, not later than February 5.

FEBRUARY 6.—**Fulwood, Preston.**—PAINTING.—Preston Guardians invite tenders for the painting of the inside of Jacson Ward, east wing, and the detention wards at their Fulwood Workhouse Hospital. Particulars and specification may be obtained from the Master of Fulwood Workhouse, and tenders, endorsed "Tender for Painting," should be sent to Mr. James Clarke, Clerk to the Guardians, Union Offices, Lancaster-road, Preston, not later than February 6.

ROADS, SANITARY, AND WATER WORKS.

FEBRUARY 1.—**Silloth.**—DRAINAGE.—The Committee of Cumberland and Westmorland Convalescent Institution, Silloth, invite tenders for sewage-disposal works, with cast-iron outfall drain. Names and addresses to Mr. John Little, Civil Engineer, Eaglesfield Abbey Rooms, Castle-street, Carlisle, on or before February 1. Quantities and form of tender will be supplied when ready on receipt of 1*l.* 1*s.* deposit.

FEBRUARY 4.—**Dublin.**—WOOD PAVING.—Dublin Paving Committee invite tenders for the supply of 40,000 Jarrah wood paving blocks, 5 in. by 9 in. by 3 in. Tenders, addressed to the Chairman, Paving Committee, City Hall, Dublin, and endorsed "Tender for Jarrah Wood Blocks," to be received by Mr. Patrick Tobin, Secretary, City Hall, not later than February 4, at or before 4 o'clock in the afternoon.

FEBRUARY 4.—**Great Missenden.**—ROAD WIDENING.—Amersham R.D.C. invite tenders for widening of Martins End-lane, Great Missenden. Plans and specifications can be seen at the surveyor's office, High-street, Amersham, between 9 a.m. and 10.30 a.m. Sealed tenders must be sent to Mr. R. H. Rushforth, Clerk to the Council, Amersham, not later than February 4.

FEBRUARY 5.—**Acton.**—SEWERING.—Acton U.D.C. invite tenders for sewering Victoria-road and Midland-terrace (approximately about 1,340 yds. of 9 in. to 18 in.). Plans and specifications can be seen, and bills of quantities obtained, at office of Mr. D. J. Ebbetts, Surveyor to the Council, 57, High-street, Acton, W., during office hours. Tenders must be delivered at the Council Offices, 242, High-street, Acton, in sealed and endorsed envelopes, not later than 3 p.m. on February 5.

FEBRUARY 5.—**Advie.**—TRENCHING.—Trenching ground, removing roots, and forming walks, at Advie Parish Church. Mr. John Shaw, blacksmith, Advie, will point out the ground and receive offers up to February 5.

FEBRUARY 5.—**Billingham.**—PAVING, ETC.—Stockton R.D.C. invite tenders for the paving, etc., of the back street, at the rear of houses on the south side of Queen-street, Haverton Hill, in the Parish of Billingham. Plans and specifications may be seen at the office of Mr. John Roddam, Surveyor to the said Council, Finkle-street, Stockton-on-Tees, and tenders, marked "Tenders for Paving," must be sent to Mr. T. H. Faber, Clerk, 20, Finkle-street, Stockton-on-Tees, not later than 10 a.m. on February 5.

FEBRUARY 5.—**Caerphilly.**—STREET WORKS.—Caerphilly U.D.C. invite tenders for paving, kerbing, channelling, flagging, sewering, forming, and metalling, etc., of High-street, Llanbradach; Grove-terrace and Parc-terrace, Senghenydd. Plans and specifications may be seen, and forms of tender obtained, at the Surveyor's Department, Council Offices, Caerphilly, upon depositing the sum of 1*l.* 1*s.* Sealed tenders, endorsed "Street Works," to be addressed to the Chairman of the Council, and delivered at the Council Offices, Caerphilly, not later than February 5.

FEBRUARY 6.—**Birmingham.**—ROAD WORKS.—Birmingham Public Works Committee invite tenders for works of road and sewer construction in Alum Rock-road. The drawings and specifications of the proposed works may be inspected, and quantities and forms of tender obtained, on deposit of 1*l.*, at the offices of Mr. Henry E. Stilgoe, M.Inst.C.E., City Engineer and Surveyor, Council House, Birmingham. Tenders, endorsed "Street Works, Alum Rock-road," to be delivered at office of Engineer on or before February 6.

FEBRUARY 6.—**Newby.**—WATER MAIN.—Scalby U.D.C. invite tenders for the extension of its water main on the Hackness-road at Newby. The plan and specification may be seen, and bills of quantities obtained, at offices of Mr. T. W. Whipp, A.R.I.B.A., Surveyor to the Council, 3, York-place, Scarborough. Tenders, sealed and endorsed "Tender for Water Main," must be sent to Surveyor before noon on February 6.

FEBRUARY 7.—**Leeds.**—PAVING, ETC.—Leeds Highways Committee invite tenders for the paving and flagging of the following streets:—Zermatt-terrace, Zermatt-street, Methley Mount, Methley View, Union-terrace, back Potternewton-lane, Methley-lane, Methley-terrace, Methley-place, back Newport Mount, back Newport-gardens, Newport-road, and back Rochester-terrace. Drawings may be seen at the City Engineer's Office, Municipal Buildings. Forms of tender and bills of quantities may be obtained, and copies of the documents forming the contract inspected, on application at the Highways Office, 155, Kirkstall-road. Sealed tenders, endorsed "Tender for Private Street Works," and addressed to the Highways Committee, must be delivered at the Town Clerk's Office, Town Hall, Leeds, not later than 10 a.m. on February 7.

FEBRUARY 9.—**Manchester.**—ROAD WORKS.—Manchester Corporation Withington Committee invite tenders for the several works required in making up Ashfield-road, Chorlton-cum-Hardy, Halstead-avenue, Chorlton-cum-Hardy; Royal-avenue, Chorlton-cum-Hardy; Edward-avenue, Chorlton-cum-Hardy; Swayfield-avenue, Chorlton-cum-Hardy; Cavendish-road, West Didsbury; Buxton-avenue, West Didsbury; Disley-avenue, West Didsbury. Plans, sections, and specifications of the work can be seen, and a form of tender, with quantities and any further information obtained, from the Surveyor to the Committee, Town Hall, West Didsbury. Tenders, to be endorsed "Tender for Street Works," and to be returned addressed to the Chairman of the Withington Committee, Town Hall, West Didsbury, not later than noon on February 9.

FEBRUARY 9.—**Preston.**—EDGING.—The Main Roads and Bridges Committee of the County Palatine of Lancaster (Blackburn Hundred) invite tenders for about 3,000 lin. yds. of 12-in. by 4-in. dressed gritstone or flagrock edging, delivered to the Whalley and Clitheroe Main Road. Specification and form of tender can be obtained from Mr. W. H. Schofield, County Surveyor, County Offices, Preston, to whom tenders must be delivered not later than February 9, endorsed "Tender for Edging."

FEBRUARY 9.—**Shildon.**—STREET IMPROVEMENT.—Shildon and East Thickley U.D.C. invite tenders for the making of Back Foundry-street (North) Shildon. Plan and specification may be seen, and quantities obtained, on application to the surveyor (Mr. Turnbull). Tenders, properly endorsed, to be sent to Mr. J. T. Proud, Clerk to the Council, Council Offices, Shildon, on or before February 9.

FEBRUARY 9.—**Swinton.**—MAKING-UP.—The Swinton and Pendlebury U.D.C. invite tenders for the making-up of several streets and passages within the district. Plans may be seen, and quantities, specifications, and forms of tender obtained, on application to Mr. Henry Entwisle, Surveyor of the Council, Council Offices, Swinton. Sealed tenders to be returned in the envelopes provided not later than February 9.

FEBRUARY 9.—**Wishaw.**—SEWER.—Wishaw T.C. invite tenders for the construction of about 800 lin. yds. of egg-shaped brick sewer, 2 ft. wide by 3 ft. high, from a point near to the works in Wishaw of the Glasgow Iron and Steel Company, Ltd., in Manse-road, along private road, and through fields to Caledonian-road, and any other work that may be

required, including manholes, etc., in connexion therewith. Drawings may be seen at the office of Mr. William Rodger, C.E., Burgh Engineer, Wishaw. Copies of specification and schedule of quantities may be obtained from Mr. Rodger on payment of a fee of 2*l*. 2s. for each copy. The Engineer will meet contractors at or near to the offices of the Glasgow Iron and Steel Company, Ltd., Manse-road, Wishaw, on February 1, at 11 o'clock a.m. Sealed tenders, endorsed "Intercepting Sewer," to be lodged with Mr. John L. Jack, Town Clerk, Wishaw, by 10 a.m on February 9.

FEBRUARY 11. — **Manchester.** — HOUSE-DRAINAGE WORK.—Manchester Corporation invite tenders for the execution of general contractors and plumbers' work that may be required in connexion with the drainage of houses and other premises for a period of twelve months ending March 31, 1908. Forms of tender, etc., for each of the seven sections of the city may be obtained, and samples of work and material seen, on application to Mr. H. Prescott, Manager of the House Drainage Department, on payment of 1*l*. 1s. for each of the said sections. Sealed tenders, addressed to the Chairman of the House Drainage Sub-Committee, will be received at the House Drainage Department not later than 10 o'clock on February 11.

FEBRUARY 11.—**Trim.**—WATERWORKS.—Trim U.D.C. invite tenders for waterworks, which comprise the construction of a pump-house, well, and service reservoir, the providing and laying of cast-iron pipes, and providing and fixing of oil engine, pumps, turbine, fountains, hydrants, and other works. A specification, bill of quantities, and form of tender, with maps and plans of said proposed works, have been prepared by Mr. Francis Bergin, 36, Westmoreland-street, Dublin. Copies of such specification, etc., have been deposited with the Clerk of the Council at the Town Hall, Trim, and can be inspected during office hours, and a printed copy of specification, etc., can be had on payment of a sum of 1*l*. 1s. for each set. Copies of the plans, specifications, and bill of quantities may also be inspected at the office of the engineer. The tenders should be deposited with the Clerk of the Council in sealed envelopes, endorsed "Tender for Trim Waterworks," not later than 1 p.m. o'clock on February 11.

FEBRUARY 12.—**Sudbury.**—DRAINAGE, ETC., AT SCHOOL.—West Suffolk Education Committee invite tenders for certain drainage and sanitary work at Sudbury Council School. Plans, specification, and form of tender can be seen at the office of the County Architect, Mr. A. Ainsworth Hunt, Sudbury and Bury St. Edmund's. Tenders, sealed and endorsed, to be delivered to Mr. Fred. R. Hughes, Secretary to the Committee, Education Offices, Crown-street, Bury St. Edmund's, on or before February 12.

FEBRUARY 14.—**East Adderbury.**—SEWERAGE DISPOSAL.—Banbury R.D.C. invite tenders for the provision, laying, and jointing of about 3,200 lin. yds. of 9-in. and 6-in. stoneware pipe sewers, together with manholes and lampholes, flushing chambers, cast-iron rising main, construction of pump-well, engine-house, storage and liquefying tanks, circular bacteria beds, laying out irrigation area, and other incidental works, East Adderbury Sewerage and Sewage Disposal. Drawings, etc., may be seen, and bills of quantities and form of tender obtained, at the offices of the engineers, Messrs. Willcox & Raikes, of 63, Temple-row, Birmingham, on payment of a deposit of 3*l*. 3s. Sealed tenders, in envelopes supplied, endorsed "Adderbury Sewerage—Contract No. 1," to be delivered at office of Mr. E. Lamley Fisher, Clerk to the R.D.C., Banbury, not later than 12 o'clock noon on February 14.

FEBRUARY 14. — **Motherwell.** — WATERWORKS. — Motherwell T.C. invite tenders for the work to be done in laying about ten miles of cast-iron pipes of 18 in. and 21 in. diameter, from Coldstream Reservoir, through Carluke and Wishaw, into the Burgh of Motherwell, and about one half mile of 12 in. and 15 in. diameter pipes within the Burgh, together with other contingent works. Copies of the specification, with duplicate copies of the schedule of quantities, may be obtained at the office of Mr. James Burns, Town Clerk, Motherwell, or from the engineer, Mr. James M'Millan, Culter Waterhead, Biggar, on payment of 2*l*. Contractors intending to visit the ground are requested to send their names to the engineer. The engineer will meet contractors at Braidwood Station at 11.19 a.m. on the arrival of the 10.20 a.m. train from Glasgow Central Station, on February 1. Sealed tenders, endorsed "Motherwell Water: Tender for Contract No. 6," to be lodged with the Town Clerk by 12 noon on February 14.

FEBRUARY 15.—**Leeds.**—WATERWORKS.—The Waterworks Committee invite tenders for the laying of one line of 33-in. internal diameter steel pipes from Kettlesing Tunnel inlet to Kirkby Malzeard, in the West Riding of Yorkshire, a distance of 11¾ miles or thereabouts, together with all sluice drains and chambers, valve chambers, river and burn crossings, etc. Plans may be seen, and the specification, bill of quantities, and form of tender obtained at the office of Mr. Charles G. Henzell, M.Inst.C.E., Waterworks Engineer, Municipal Buildings, Leeds, on payment of a deposit of 5*l*. Tenders, endorsed "33-in. Pipe Line Waterworks," must be addressed to the Chairman of the Waterworks Committee, and delivered in a sealed cover at the Town Clerk's Office, Town Hall, Leeds, not later than 10 a.m. on February 15.

✱ FEBRUARY 16. — **Paddington.** — SEWERAGE. — The Paddington B.C. invite tenders for execution of sewerage, combined and other drainage, and contingent works in Clarendon-gardens, W. Printed conditions, specifications, schedule, bills of quantities, and forms of tenders may be obtained between 10 and 1 of Mr. E. B. B. Newton, Borough Surveyor, Town Hall, Paddington, W., on deposit of 1*l*. Tenders, addressed to Mr. A. W. J. Russell, Town Clerk, Town Hall, Paddington, W., on or before February 16.

FEBRUARY 18. — **Glenfield.** — SEWERAGE SCHEME. — Blaby R.D.C. invite tenders for the construction of stoneware pipe sewers 9 in. and 6 in. in diameter, together with manholes, ejector chamber, tanks, and filter, engine-house, and other incidental works required in connection with the sewerage of the Parish of Glenfield, in the County of Leicester. Plans and specifications can be seen, and bill of quantities obtained, by appointment with the Council's Engineer and Surveyor, Mr. J. Turner, Blaby-road, South Wigston, near Leicester, and a deposit of a cheque for 5*l*. Sealed tenders, on forms to be obtained from the Engineer, and endorsed "Glenfield Sewerage," must be sent to Mr. B. A. Shires, Clerk to the Council, Friar-lane, Leicester, on or before February 18.

✱ FEBRUARY 18.—**Leicester.**—DRAINAGE.—The Blaby R.D.C. invite tenders for construction of stoneware pipe sewers, 9 in. and 6 in., together with manholes, ejector chamber, tanks and filter, engine-house, etc., in connexion with sewerage of the Parish of Glenfield, Leicester. Plans and specification can be seen, and bill of quantities obtained, by appointment with the Council's Engineer, Mr. J. Turner, Blaby-road, S. Wigston, near Leicester. Sealed tenders, endorsed "Glenfield Sewerage," to be delivered to the Clerk to the Council, 1, Friar-lane, Leicester, on or before February 18.

FEBRUARY 18.—**Partridge Green.**—DRAINAGE, ETC.—Horsham R.D.C. invite tenders for the construction of earthenware and cast-iron pipe sewers, bacteria beds, and other works for the drainage of Partridge Green. Specification, with bills of quantities and schedules, may be obtained from the engineer, Mr. W. Vaux Graham, M.Inst.C.E., 5, Queen Anne's-gate, Westminster, S.W., and the plans may be seen at his office on payment of 5*l*. (five pounds). Sealed tenders, properly filled in and marked on the outside "Partridge Green Drainage, 1907," are to be received by Mr. A. C. Coole, Clerk to the Council, 9, Carfax, Horsham, Sussex, before noon on February 18.

✱ FEBRUARY 22. — **Bromley, Kent.** — DRAINAGE WORKS.—The Education Committee of the Borough of Bromley, Kent, invite tenders for certain works in connexion with the re-drainage of Raglan-road Council Schools. Plans and specifications can be seen, and bills of quantities and form of tender obtained, on application to the Borough Engineer on payment of 1*l*. 1s. Sealed tenders, endorsed "Tender for Raglan-road Council Schools Drainage," to be delivered to Mr. R. W. Wentworth Hortop, Clerk to the Committee, Education Offices, Bromley, Kent, before 4 p.m., February 22.

STONE, MATERIALS, AND STORES

FEBRUARY 2.—**Slough.**—STORES.—Slough U.D.C. invite tenders for the supply and delivery of the following articles and materials for the year ending March 31, 1908:—(*a*) Tools and ironmongery; (*b*) cotton waste, grease, and packing; (*c*) gas mantles, etc.; (*d*) stoneware pipes and gullies; (*e*) cement; (*f*) gas works distilled tar. Particulars and forms of tender, alphabetically arranged, may be obtained, and samples inspected, at the Surveyor's Office, 1, Mackenzie-street, Slough. Sealed tenders, endorsed "Stores," to be delivered to Mr. G. H. Charsley, Clerk, 11, Mackenzie-street, Slough, on or before February 2.

FEBRUARY 4.—**Amersham.**—FLINT AND GRAVEL.—Amersham R.D.C. invite tenders for the supply of 6,550 yds. of flints and 216 tons of granite. Lists of quantities and forms of tender may be obtained on application to Mr. Levi Hilsden, Surveyor, Amersham, to whom tenders must also be sent not later than February 4.

FEBRUARY 4.—**Birkenhead.**—MATERIALS.—The Corporation of Birkenhead invite tenders for the supply and delivery of the undermentioned stores and materials, as may be required from time to time at the Corporation Depôts, Cleveland-street, Birkenhead, and Old Chester-road, Tranmere, from March 31, 1907, to March 31, 1908, viz.:—Red bricks, Portland cement, hydraulic lime, stoneware pipes, iron castings, wrought iron, creosote oil, pitch, tar, scavenging brushes. Specifications, forms of tender, and all particulars may be obtained at the office of Mr. Charles Brownridge, M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Birkenhead. Tenders, upon the printed forms supplied, sealed and endorsed with the name of the material tendered for and the words "Roads Department," to be sent in to Mr. Alfred Gill, Town Clerk, Town Hall, Birkenhead, not later than 5 o'clock in the afternoon of February 4.

FEBRUARY 4.—**Birkenhead.**—ROAD MATERIAL.—The Corporation of Birkenhead invite tenders for the supply of granite and Rawtenstall kerbs and channels, Penmaenmawr breaking stone, and natural flags, to be delivered free as required from March 31, 1907, to March 31, 1908, at the railway station, or upon the Dock Quay, within the Borough of Birkenhead. Specifications, forms of tender, and all particulars may be obtained at the office of Mr. Charles Brownridge, M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Birkenhead. Tenders, upon the printed forms supplied, sealed, and endorsed with the name of the material tendered for and the words "Roads Dept.," to be sent in to Mr. Alfred Gill, Town Clerk, Town Hall, Birkenhead, not later than 5 o'clock in the afternoon of February 4.

FEBRUARY 4. — **Lewisham.** — GRANITE.—Lewisham Guardians invite tenders for the supply of 200 tons of Guernsey granite spalls. Forms of tender and contract can be procured at the Union Offices, 394, High-street, Lewisham, S.E. Tenders to be sealed and endorsed "Tender for Granite," and must be delivered not later than 4 p.m. on February 4.

✱ FEBRUARY 4. — **St. Pancras.** — MATERIALS, ETC.— The Highways, etc., Committee of the Borough of St. Pancras invite tenders from persons willing to execute contracts for certain work or materials (for particulars see advertisement) for one year from April 1, 1907. Form of tender, etc., may be obtained from the Borough Engineer up to February 4. Tenders, under endorsed covers to be delivered at the Office of the Department of Works at the Town Hall, Pancras-road, N.W., not later than 12 o'clock on February 4.

FEBRUARY 5.—**Blyth.**—WATER MAINS.—Blyth U.D.C. invite tenders for supply of about 3,000 yds. of cast-iron faucet and spigot water mains. Particulars as to weight of pipes, time and place of delivery, etc., will be supplied on application to Mr. John Fawcett, Surveyor to the Council, Bridge-street, Blyth. Tenders endorsed "Water Mains," to be sent to Mr. Thos. R. Guthrie, Blyth, Clerk to the Council, on or before February 5.

✱ FEBRUARY 5.—**Willesden.**—ANNUAL CONTRACTS.—The Willesden D.C. invite tenders for works and supply of materials for one or three years from April 1, 1907 (see advertisement in this issue). Specifications and forms of tender may be obtained upon receipt of 5s. for each tender form on and after January 28 upon application to Mr. O. Claude Robson, Council's Engineer, Public Offices, Dyne-road, Kilburn, N.W. A 10*l*. note to be enclosed with each tender, which are to be delivered to Mr. Stanley W. Ball, Dyne-road, Kilburn, N.W., before 4 p.m. on February 5.

FEBRUARY 6. — **Sheffield.** — STORES.—Sheffield Corporation Tramways Committee invite tenders for the supply of stores, including:—Electrical supplies and fittings; car fittings; wood slipper blocks; belting; canvas, sand bags, etc.; cleaning cloths, waste, brushes, etc.; glass; files; anti-friction metal; bolts, nuts, and washers; iron and steel; castings (iron, steel, brass, gun-metal, and phosphor bronze); steam tubes and fittings; overhead line material; oils, paints, varnishes, grease, etc.; motor spirit, for the year ending March 25, 1908. Forms of tender and all information relative thereto can be obtained from Mr. A. R. Fearnley, General Manager, Division-street, Sheffield. Samples of many of the above articles may be seen on production of tender form at the Division-street offices. Tenders, enclosed in sealed envelopes, and endorsed "Tender for ——," must be delivered to the Manager not later than 11 a.m. on February 6.

FEBRUARY 7.—**Cheltenham.**—STORES.—Cheltenham Corporation invite tenders for the supply of the following for the year ending March 31, 1908:—(1) Portland cement; (2) forage; (3) stoneware pipes; (4) broken stone; (5) kerbs and setts; (6) coal for boilers, etc.; (7) disinfectants; (8) oils, colours, etc.; (9) castings; (10) ironmongery; (11) timber; (12) india-rubber goods; (13) lead pipe, brass fittings, etc.; (14) tools for highways, etc.; (15) wrought iron, steel, files, etc.; (16) electric light fittings; (17) household goods, sundries, etc.; (18) lias lime, bricks, etc.; (19) cast-iron pipes. Forms of tender may be obtained after February 7 from Mr. J. S. Pickering, Borough Surveyor and Water Engineer, Municipal Offices, Cheltenham, to whom endorsed tenders are to be delivered not later than February 21.

✱ FEBRUARY 7.—**West Ham.**—SUPPLIES, ETC.—The West Ham B.C. invite tenders for various supplies, etc. For further information as to obtaining forms of tender, etc., see advertisement in this issue. Tenders to be delivered at the office of the Town Clerk, Town Hall, West Ham, E., in the envelope supplied, by registered post, not later than 12 noon, February 7.

FEBRUARY 8.—**Goole.**—MATERIALS.—Goole U.D.C. Highway and Sewers Committee invite tenders for the supply of the undermentioned stores and materials, the contracts to commence on April 1 next, and to terminate on March 31, 1908:—(1) Road metal; (2) setts; (3) slag; (4) concrete; (5) York flags; (6) kerb; (7) channel; (8) stoneware goods; (9) Portland cement; (10) tar macadam; (11) coal; (12) paints and oils. Forms of tender, specifications, and all other necessary information may be obtained by applying to Mr. E. Hazledine Barber, A.M.Inst.C.E., Town Engineer and Surveyor, Engineer and Surveyor's Office, Goole. The committee will not consider any tender except those on the authorised form of tender, which must be sent to Mr. J. W. Johnson, Clerk to the Urban Council, Goole, on or before February 8.

FEBRUARY 9. — **Bedford.** — ROAD MATERIAL AND CARTAGE.—The Bedfordshire C.C. invite tenders for the supply of the following:—(1) Broken granite; (2) slag; (3) flints; (4) gravel; and for cartage of road materials. Particulars and forms of tenders may be obtained at the office of the County Surveyor, Shire Hall, Bedford. Sealed tenders, endorsed "Tender for Road Materials" or "Tender for Cartage," must be delivered at the County Surveyor's Office not later than 12 o'clock noon on February 9. Samples must accompany the tenders for road materials.

FEBRUARY 9.—**East Retford.**—GRANITE AND SLAG.—East Retford R.D.C. invite tenders for the supply of broken granite and slag required for the year ending March 31, 1908. Forms of tender and conditions of contract will be sent by Mr. T. W. Denman, Clerk to the Council, East Retford, upon receipt of a stamped addressed foolscap envelope. Tenders, which must be upon the forms provided, are to be delivered not later than February 9.

FEBRUARY 9.—**Warrington.**—MATERIALS.—Warrington Paving and Sewerage Committee invite tenders for the supply of the Committee's requirements during the twelve months ending March 31, 1908, viz.:—Granite or syenite cubes; concrete flags; Rawtenstall kerbs; Rawtenstall setts; Rawtenstall flags; blue bricks; chequered tiles; sewer pipes, bends, junctions, etc.; cast-iron gullies; macadam and chippings; white limestone chippings; sand; sea gravel; copper slag; spades, picks, masons' tools, etc.; brooms; street-sweeping machine rotary brooms. Also for carting for the Highway and Scavenging Departments for the twelve months. Parties wishing for tender forms will please specify those materials only for which they propose to tender. Specifications, etc., may be seen, and forms of tender and all further information obtained, at the office of the Borough Surveyor, Town Hall, at which place tenders, sealed, must be delivered on or before 12 o'clock noon on February 9.

FEBRUARY 11. — **Belfast.** — STORES. — Belfast and County Down Railway Company invite tenders for the supply of the undermentioned stores for twelve months from March 1 next:—(1) Iron; (2) iron castings; (3) tinware; (4) bolts, spikes, etc.; (5) tyres and axles; (6) springs, steel, and files; (7) nails, screws, etc.; (8) carriage fittings; (9) brushes, brooms, etc.; (10) baskets; (11) glass; (12) ropes, twine, and flax; (13) canvas; (14) carriage trimmings; (16) oils and tallow; (17) varnishes; (18) colours; (19) waste; (20) fireclay goods; (21) cement and alabaster; (22) stone and brick; (23) lime and sand; (24) petroleum oil and drysalteries; (25) switches and crossings; (26) timber and slates. Samples and patterns can be seen on application to the Storekeeper, Belfast Terminus. Tenders will be received only on the Company's own forms, which can be had on application to the Secretary, and

must reach him (marked "Tender for Stores") not later than 10 a.m. on February 11.

FEBRUARY 11.—**Blything.**—GRANITE.—Blything Guardians will, at their meeting to be held at the Board-room, Bulcamp, on February 11, receive tenders (at per ton) for the supply and delivery by March 1, 1907, at Wenhaston Station, Southwold Railway, of 100 tons of granite blocks for breaking up in the Labour Yard. Tenders, sealed, and endorsed "Tender for Granite," to be delivered at the Board-room, Bulcamp, not later than 10 o'clock a.m. on February 11.

FEBRUARY 11.—**Derby.**—GRANITE, SLAG, ETC.—Derbyshire C.C. invite tenders for the supply of broken granite, basalt, limestone, slag, or other suitable materials required for the main roads during the year ending March 31, 1908. Forms of tender and conditions of contract may be obtained at office of Mr. J. W. Horton, A.M.I.C.E., County Surveyor, County Offices, St. Mary's Gate, Derby, and will be forwarded through the post on receipt of a stamped addressed foolscap envelope. Tenders are to be delivered to Surveyor not later than February 11.

✱ FEBRUARY 11.—**Hendon.** MATERIALS, ETC.—The Hendon U.D.C. invite tenders for supply of materials, etc., within their district for the year from April 1, 1907 (see advertisement in this issue). Specifications, forms of tenders, and other particulars, may be obtained of Mr. S. Slater Grimley, Council's Surveyor. Sealed tenders, addressed to the Chairman of the Council, endorsed "Tender for ——," to be sent to Mr. Henry Humphris, Council Offices, The Burroughs, Hendon, N.W., not later than 5 p.m. on February 11.

FEBRUARY 11.—**Warrington.**—MATERIALS.—Warrington Sanitary Works Committee invite tenders for the supply of the following materials for Longford Depôt, for a period of twelve months from April 1 next: Wrought iron, bolts, castings, tools, oils, packing, bricks, vitriol, etc., also for carting. Samples of goods required may be seen, and specification and form of tender may be obtained, from Mr. R. Wilson, Manager, Longford Depôt, Warrington, on the payment of 10s. Tenders, securely fastened, must be addressed "The Chairman, Sanitary Works Committee, Town Hall, Warrington," endorsed "Tender for Depôt Materials," and delivered not later than 10 a.m. on February 11.

FEBRUARY 12.—**Middlesbrough.**—WHINSTONE AND LIMESTONE.—The Middlesbrough R.D.C. invite tenders for the supply of whinstone (broken and unbroken) and of limestone for macadamising purposes, for the year ending March 31, 1908, in such quantities as their Surveyor shall from time to time direct. Further particulars and forms of tender may be obtained on application to Mr. W. H. Dixon, District Surveyor, Kirkby-in-Cleveland, near Stokesley, R.S.O., or to Mr. William Richardson, Stokesley, R.S.O., Clerk for Highway Purposes to the Middlesbrough R.D.C. Sealed tenders, marked "Tenders for Stone, Middlesbrough," must be forwarded not later than February 12.

FEBRUARY 13.—**Escrick.**—STONE.—Escrick R.D.C. invite tenders for the supply of about 4,000 tons of best whinstone, about 600 tons of slag, and also about 300 tons of granite, all broken to be delivered, carriage paid, at one or more of the following railway stations, namely:—Foss Islands, York, Naburn, Escrick, and Stamford Bridge, and at one or more of the following wharves, namely:—Blue Bridge Landing, York, Water Fulford, Naburn, Stillingfleet, Cottingwith Ferry, Thorganby, Wheldrake, Elvington, Kexby, and Stamford Bridge. Forms of tender can be obtained from Mr. Fred. A. Camidge, Clerk to the above Council, 3, Stonegate, York, on receipt of stamped addressed foolscap envelope. A sample of stone is to be sent in to the Surveyor of Highways, Escrick R.D.C., 1, Museum street, York, before February 13. Tenders, marked "Tender for Stone," are to reach the Clerk by 10 o'clock on February 13.

FEBRUARY 13.—**Hollingbourn.**—ROAD MATERIALS.—The R.D.C. of Hollingbourn invite tenders for the supply and delivery of road materials from March to September, 1907. Full particulars and forms of tender on application to Mr. H. J. Bracher, Clerk to the Council, 33, Earl-street, Maidstone. Sealed tenders (marked "Tenders for Materials") must reach the Clerk on or before February 13.

FEBRUARY 14.—**Gillingham.**—MATERIALS.—Gillingham (Kent) T.C. invite tenders for the following for the term of one year, commencing on April 1, 1907:—(1) Road materials; (2) Portland cement and lime; (3) requisites for precipitation works; (4) stoneware pipes, gullies, etc.; (5) timber; (6) sewer ironwork; (7) coal and coke; (8) bricks; (9) paints, oils, and varnish; (10) general stores and ironmongery; (11) disinfectants; (12) forage. Specifications, conditions of contract, and forms of tender (in duplicate), together with any other information required, may be obtained upon application to Mr. John L. Redfern, Borough Engineer and Surveyor, Corporation Offices, Gillingham, Kent. Sealed tenders, endorsed with the names of the materials tendered for, accompanied by samples of each class of material, and addressed to the Chairman of the Works Committee, are to be delivered to Mr. F. C. Boucher, Town Clerk, Corporation Offices, Gillingham, Kent, not later than 12 noon on February 14.

FEBRUARY 14.—**Stokesley.**—WHINSTONE AND LIMESTONE.—The Stokesley R.D.C. invite tenders for the supply of whinstone (broken and unbroken) and of limestone for macadamising purposes, for the year ending March 31, 1908, in such quantities as their Surveyor shall from time to time direct. Further particulars and forms of tender may be obtained on application to Mr W. H. Dixon, District Surveyor, Kirkby-in-Cleveland, near Stokesley, R.S.O., or to Mr. William Richardson, Stokesley, R.S.O., Clerk to the Stokesley R.D.C. Sealed tenders, marked "Tenders for Stone, Stokesley," must be forwarded not later than February 14.

FEBRUARY 14.—**Wolverhampton.**—LIME.—The Sewerage Committee invite tenders for the supply and delivery of lime to the Sewage Outfall Works for the year ending March 31, 1908. Specifications and forms of tender may be obtained from Mr. Wm. Clifford, Manager and Chemist, Sewage Outfall Works, Wolverhampton. Sealed tenders, addressed "Chairman of the Sewerage Committee," and endorsed "Tender for Lime," to be left at the Town Clerk's Office on or before 12 noon, February 14.

FEBRUARY 14.—**Woolwich.**—ROAD MATERIAL, ETC.—The Council of the Metropolitan Borough of Woolwich invite tenders for the supply of the undermentioned road material, stores, forage, etc., from April 1, 1907, to March 31, 1908:—(1) Ballast, sand, etc.; (2) brooms, brushes, etc.; (3) cement; (4) chandlery; (5) drain pipes; (6) forage (for six months only, from April 1, 1907); (7) harness; (8) ironmongery; (9) road material; (10) sewer ironwork; (11) timber. Forms of tender, with schedules, and any further information, can be obtained at the offices of Mr. J. Rush Dixon, M.I.C.E., Borough Engineer, Town Hall, Woolwich. Sealed tenders, based on properly priced-out schedules, must be delivered to Mr. Arthur B. Bryceson, Town Clerk, Town Hall, Woolwich, at the Town Hall, Woolwich, not later than 12 o'clock noon on February 14, in envelope endorsed "Tender for ——."

FEBRUARY 15.—**Claypole.**—ROAD MATERIALS.—The R.D.C. of Claypole invite tenders for the supply of about 1,800 tons of granite and 2,100 tons of slag, to be delivered in such quantities and at such times and places in their district as the Council or their District Surveyor shall require and direct. Sealed tenders, marked "Tender for Granite," and "Tender for Slag," as the case may be, to be sent to Mr. A. J. Franks, Clerk, Union Offices, 27, Lombard-street, Newark, on or before February 15, and samples must be delivered free of expense to the Board-room, The Ossington, Newark, on or before February 18 next. Further particulars, specifications, and forms of tender may be obtained from Mr. F. C. Meyrick, District Surveyor, Syston, Grantham, upon receipt of a foolscap stamped and addressed envelope.

FEBRUARY 15.—**Horncastle.**—ROAD MATERIAL.—The R.D.C. of Horncastle invite tenders for the supply of about 6,260 tons of granite (XX) and about 1,205 tons of slag (1¾ in.), to be delivered between April 1 and October 31 next. Specifications, etc., showing the stations at which the material is to be delivered, and the approximate quantity to be delivered at each station, may be obtained on application at the office of the Council. Tenders, marked on the cover "Tender for Road Material," must be sent to Mr. J. E. Chatterton, Clerk, Council Offices, Horncastle, by post not later than February 15.

FEBRUARY 16.—**Hemel Hempsted.**—ANNUAL CONTRACTS.—Tenders are invited for the supply of the undermentioned requisites for the year ending March 31, 1908:—(1) slack coal; (2) cement; (3) granite; (4) disinfectants. Tenders, which must be on the printed official forms, should be delivered not later than February 16, marked "Tender for ——." Mr. Lovel Smeathman, Town Clerk, Town Hall, Hemel Hempsted.

FEBRUARY 16.—**Margate.**—ARTICLES.—Margate Corporation invite tenders for the supply of all or any of the articles mentioned in the following schedules for the year commencing April 1, 1907:—Schedule No. 1, cast-iron pipes and special castings; schedule No. 2, valves, hydrants, fittings, and surface boxes; schedule No. 3, wrought-iron and steel tubing and fittings; schedule No. 4, yellow metal fittings; schedule No. 6, miscellaneous stores (oil, tallow, etc.). Applications for schedules and forms of tender (upon which alone tenders will be received) should be made to the Manager, Mr. F. Stanley, 18, Cecil-square, Margate. Sealed tenders, endorsed "Tender for ——," as the case may be, must be delivered at office of Mr. Edward Brooke, Town Clerk, Town Clerk's Office, Margate, not later than February 16.

FEBRUARY 18.—**Banbury.**—STONE.—Banbury T.C. invite tenders for one year's supply of Hartshill, Rowley Regis, and Clee Hill stone, ending March 31, 1908. Forms of tender and other information may be obtained on application at office of Mr. N. H. Dawson, C.E., Borough Surveyor, Town Hall, Banbury. Sealed tenders, endorsed "Stone," to be delivered not later than noon, February 18.

FEBRUARY 18.—**Richmond.**—STORES.—Richmond (Surrey) T.C. invite tenders for the supply of:—(2) Ironfounders' work; (3) tools; (4) bass brooms, brushes, etc.; (6) road materials—granite, granite siftings, and broken chalk and brown pit flints; (7) Thames ballast and gravel; (8) granite kerb, channel and setts, York kerb and flagging; (9) Portland cement. Forms of tender and further particulars may be obtained from the Borough Surveyor, Mr. J. H. Brierley, A.M.Inst.C.E. Tenders, duly endorsed, to be sent in on or before February 18 to Mr. Fredk. B. Senior, Town Clerk, Town Hall, Richmond, Surrey.

✱ FEBRUARY 19.—**Bromley, Kent.**—STORES.—The Bromley B.C. invite tenders for stores and materials, etc. (for particulars see advertisement). Particulars and conditions may be obtained at the Municipal Offices. Tenders, sealed and endorsed, must be delivered, addressed to the Town Clerk, Municipal Offices, Bromley, Kent, not later than 3 p.m., February 19.

FEBRUARY 19.—**Lewes.**—ROAD MATERIALS.—East Sussex C.C. Roads and Bridges Committee invite tenders for the supply of materials, cartage, and team labour for the maintenance of the main roads in the West, South, Central, and East Districts of the County, for the year ending March 31, 1908, viz.:—(1) Stone, granite, and other approved material delivered in cargoes not exceeding 500 tons each to the Council's Wharf in Newhaven Harbour; (2) Flints, stone, granite, and other approved material delivered to various railway stations and wharves; (3) flints, local stone, and other approved material delivered on the sides of the main roads; (4) the cartage of materials from railway stations and wharves to the sides of the main roads; (5) general team labour. Further particulars, conditions of contract, and forms of tender can be obtained on application to Mr. F. J. Wood, A.M.Inst.C.E., County Surveyor, County Hall, Lewes. Tenders to be delivered at the County Surveyor's Office, County Hall, Lewes, on or before Feb. 19.

FEBRUARY 20.—**Beverley.**—STONE.—The Highways and Bridges Committee of the East Riding C.C. invite tenders for the supply of about 6,000 tons of stone for macadamising the main roads, to be delivered at the several railway stations and wharfs in the Riding. Conditions, forms of tender, and further particulars may be obtained on application to the County Surveyor, Beverley. Tenders, endorsed "Stone," to be sent addressed to the Clerk of the County Council, County Hall, Beverley, on or before February 20.

FEBRUARY 20.—**Headington.**—ROAD MATERIAL.—The R.D.C. of Headington invite tenders for the supply of the best iron slag (clean and free from dirt), the best selected Hartshill, Leicester granite, Clee Hill, Rowley Regis or Mendip, or other stones, broken to 2-in. gauge, the pieces not to exceed 2 in., and not to be less than 1½ in. (free from dirt and fragments), and unscreened gravel, or ½-in. stone chippings, to be delivered free of carriage and wharfage. The whole to be delivered before January 31, 1908. Each person tendering for the supply of iron slag and Hartshill or other stones, or either of them, must forward to the Surveyor, with his tender, samples of the materials for the supply of which he shall so tender. The Council are also desirous of receiving tenders for the carting of Hartshill or other approved stones or iron slag on the various roads in the district. Tenders, containing full particulars of places and quantity, can be obtained from the District Surveyor, Mr. J. C. Coates, Hartfield Cottage, New Headington, and such tenders will be received by the District Surveyor, endorsed "Tenders for Materials" or "Carting," up to February 20.

✱ FEBRUARY 21.—**Hornsey.**—WORKS AND MATERIALS.—The Hornsey T.C. invite tenders for one or three years from April 1, 1907, of the following:—(1) Road materials; (2) paving, granite, and general masons' materials; (3) masons' and paviors' work; (4) laying and maintaining asphalte footway and carriage pavements; (5) sewer and drainage work; (6) Portland cement; (7) forage; (8) harness and stable requisites; (9) general stores and ironmongery; (10) iron and steel; (11) wheelwrights' work and cart fittings; (12) disinfectants. Forms of tender, &c., can be obtained from Mr E. J. Lovegrove, Borough Surveyor, 99, Southwood-lane, Highgate, between 10 and 12. Tenders, on the prescribed form, to Town Clerk's Office, before 4 p.m., February 21.

NO DATE.—**Finsbury.**—SUPPLIES.—Finsbury B.C. invite tenders for the supply of the undermentioned work and articles for twelve months from March 31 next:—(*a*) Ballast, sand, etc.; brushes; cartage; gasfitters' materials; lime and cement; paving materials; sewer ironwork; smiths' work; stoneware goods; timber. (*b*) General stores; machine broom refills; paints and oils; scavengers' brooms. Particulars of the articles, etc., required, and forms of tender, may be had any day save Saturday from 10 to 4, and on Saturday from 10 to 12, on application at the Borough Surveyor's Department, at the Town Hall, Rosebery-avenue, E.C., in respect of the articles specified (*a*), and at the Superintendent's Office, 26, Wharf-road, City-road, N., in respect of those specified (*b*). Tenders, marked on the outside "Ballast," or as the case may require, must be delivered to Mr. George Whitehead Preston, Town Clerk, Finsbury Town Hall, Rosebery-avenue, E.C., not later than noon on the dates specified on the forms of tender.

NO DATE.—**Morley.**—TILES.—Morley Sewage Purification Committee invite prices and samples of glazed stoneware tiles for the aerating floor of trickling beds. Area required, about 10,000 super yds. For particulars apply to Mr. W. E. Putman, A.M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Morley.

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*CONTRACTOR'S PLANT AND MACHINERY, LWR. TOOTING—At the Contractor's Depôt	Fuller, Horsey, Sons, & Cassell	Feb. 5
*BUILDER'S STOCK, ETC., ALTON—At 87, High-street, Alton	J. T. Skelding	Feb. 5, etc.
*LEASEHOLD WORKS, ALTON—At 87, High-street, Alton	J. T. Skelding	do.
DEALS, BATTENS, ETC.—Great Hall, Winchester House, Old Broad-street, E.C.	Churchill & Sims	Feb. 6
*BUILDING SITE, CITY OF LONDON—At the Mart	Jones, Lang, & Co.	Feb. 18
*BUILDER'S PLANT, MACHINERY, AND STOCK, WALTHAMSTOW—On the Premises	Fuller, Horsey, Sons, & Cassell	Feb. 27
*FREEHOLD SITE, NEAR BOW-ROAD, E.—At the Mart	Notley & Co.	March 1
*FREEHOLD BUILDING SITE, WHITECROSS-STREET—At the Mart	Norton, Trist, & Gilbert	March 11

Legal.

CASE UNDER THE LONDON BUILDING ACT SETTLED.

In the Chancery Division on the 25th ult., Mr. Waggett mentioned to Mr. Justice Neville the case of Gooch's Stores, Ltd., *v.* Harrod's Stores, Ltd., an action in which his lordship had granted over that day an *interim* injunction restraining the defendants from trespassing on the premises of the plaintiffs in the Brompton-road, and from exercising against the plaintiffs as adjoining owers and occupiers any rights reserved to building owners, except in accordance with the provisions of the London Building Act, 1894.

The learned counsel stated that the defendants had agreed to treat the motion as the trial of the action, and there would therefore be judgment by consent for the plaintiffs in the terms of the notice of motion, the defendants paying the costs of the action.

His lordship assented to the arrangement.

Mr. Maugham represented the defendants.

LITIGATION AS TO A BRICK CONTRACT.

The case of Vint *v.* Moulson and Mellor came before a Divisional Court of King's Bench, consisting of Justices Darling and Phillimore, last week, on the plaintiff's appeal from a decision of Judge Bompas, sitting as County Court Judge at Bradford.

Mr. R. Watson appeared for the appellant, and Mr. E. Shortt for the respondents on the appeal.

Mr. Watson said the action was heard in June last, when judgment was given for the defendants. The plaintiff claimed 31*l.* 7s. for the alleged breach of a contract for failure to deliver a quantity of bricks. Two questions arose on the appeal; one as to the true meaning of the contract, and the second whether in the events which had happened the defendants were justified in repudiating the contract by reason of the plaintiff having purchased bricks elsewhere. The contract was contained in two letters, the first being dated July 21, 1905, from the defendants to the plaintiff in the following terms:—"We agree to deliver you all the bricks you require for the property in Bolton Woods at 24s. 9d. per 1,000, less 2½ per cent. quarterly account." The plaintiff's reply on the same date was as follows:—"We accept your quotation of this date." The learned County Court Judge, on the reading of the two letters, said that the case raised a difficult point of law, but he came to the conclusion that the plaintiff could insist on getting bricks from the defendants under the contract at the agreed price, only if he took from the defendants the whole of the bricks required in the building of houses in Bolton Woods, and the plaintiff having bought bricks elsewhere the defendants were entitled to treat it as a repudiation of the contract and to refuse further deliveries, and judgment was entered for the defendants with costs.

The learned counsel and Mr. Shortt having argued the point of law as to the construction to be put on the contract,

Mr. Justice Darling, in giving judgment, said he had come to the conclusion that the judgment in the court below could not stand. He did not think the contract meant what the learned County Court Judge or the defendants said it did, neither did he think that the word "require" in the letter of the defendants meant "request," as the plaintiff said. He (his lordship) preferred to think it meant this, that having regard to the number of bricks which the builder had in stock, and he only wanted 1,000 bricks to build the houses, then the 1,000 bricks was to be the number required. If, however, the bricks were bought elsewhere, and it would take 2,000 bricks to build the houses, then 2,000 would be the number required. Although "required" did not mean "request," it meant "needed for," but not "needed for" without any regard to what the plaintiff might get from elsewhere, or had in hand, or anything of that kind. If the plaintiff got bricks elsewhere, it did not give the defendants the right to treat it as a repudiation of the contract and to refuse to deliver any more. At most they could only claim damages for the breach. In his opinion the judgment of the court below must be reversed, and as to the damages to which the plaintiff was entitled, he could only ask for them in respect of bricks undelivered, and not in respect of those he bought from somebody else.

Mr. Justice Phillimore concurred, and the appeal was accordingly allowed with costs.

Order accordingly.

HORSHAM BUILDING DISPUTE.

The case of King and another *v.* Tanner & Chart, Ltd., came before Mr. Justice Kennedy, sitting without a jury, in the King's Bench Division, on the 25th ult., an action by the plaintiffs against the defendants in respect of an alleged nuisance by reason of interference with light and air.

Mr. Duke, K.C., and Mr. Morton Smith appeared for the plaintiffs; and Mr. C. A. Russell, K.C., Mr. A. J. Ashton, K.C., and Mr. Brodrick for the defendants.

Mr. Duke, in opening the case, said it was an action brought in respect of an alleged nuisance by reason of the defendants' interference with the light and air coming to the plaintiffs' premises. The premises in question were situated in Middle-street, Horsham, which was a very ancient old English street, and a very narrow one, being at the place in question only 18 ft. wide, and somewhat narrower at other parts. Middle-street ran between East-street and West-street, the plaintiffs' premises being No. 11, Middle-street, and were situated on the north side of the street, the defendants, being a block of premises on the south side of the street. Although defendants had not extended the ground area of their premises they had increased the height. What the defendants had done in the summer and autumn of 1904 was to pull down the upper part of a gabled building which formerly existed and to erect a square block of buildings of greater height. The subject of complaint in the present action was the portion of the premises in the occupation of a butcher. The plaintiffs' house was an old one, the total height of the ground floor being only 6 ft. 6 in. The first floor had a large projecting window, and the upper floor projected over the whole of the lower premises. The lights affected by the defendants' building were two windows and the light formerly coming through the doorway. The windows were 5 ft. 6 in. in height, and the doorway was so constructed that during business hours the door could be taken away, and was always taken away, so as to offer as little obstruction as might be to the access of light to the interior of the shop. The plaintiffs' premises had formerly got a substantially valuable light from the south, which made them reasonably practicable for occupation. The business carried on there was that of an ironmonger and fancy goods trade. The occupier had been engaged in the business for a great many years, and now held the premises as a yearly tenant, and he and the freeholder joined in bringing the present action. The premises were held at a rental of 77*l.* 10s. per annum. Middle-street was the best business street in that part of Horsham. Above the butcher's shop formerly was nothing but a cupboard-room, and defendants had now made there a stock and show room. What had been done was to increase the height of the main front of the butcher's premises roughly from about 15 ft. to 21 ft. 3 in. Therefore they had now a building of about 21 ft. high in a street which at this point was only 18 ft. wide. Apart from the increased height of the defendants' premises the plaintiffs' building had suffered a substantial diminution of the light formerly coming there by reason of the defendants having in the place of the gabled top erected a square building. It was clear that in a narrow street such as Middle-street there must in consequence of what the defendants had done be a large obstruction of light to the plaintiffs' premises.

The case was eventually settled by the defendants agreeing to pay the plaintiffs 150*l.* and the costs of the action.

Patents of the Week.

APPLICATIONS PUBLISHED*.

5,805 of 1906.—A. Moore: *Mechanism for Actuating Door Locks and Latches.*

This relates to a mechanism for actuating door locks and latches, and consists in the combination with the sliding operating spindle having a knob fixed on its outer end, and capable of being drawn within the recess of a cup fixed to the outside of the door, of a flanged sleeve mounted loosely upon the said spindle, and retained in position against the inner face of the door by a recessed carrier, and an inner knob mounted so as to revolve upon the said sleeve when the outer knob is within the cup, and also capable of being moved longitudinally upon the sleeve, and connected thereto by a spring catch operated by a press button.

9,000 of 1906.—E. G. Harcourt: *Fanlight, Skylights, and other Windows.*

This relates to actuating devices for fanlights and other windows, and consists in the combination with a pair of toggles of toggle levers or their equivalent of a screw or other operating device adapted to impart a sliding movement to the feet or like extremities of the toggles, and, by thus altering the angle, to impart the required opening and closing movement of the window on which the device is arranged.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

7,209 of 1906.—A. Bruce: *Self-closing Valve Arrangement for Cisterns.*

This relates to a self-closing arrangement for cisterns, comprising in combination a drop or like valve or equivalent, a diaphragm connected therewith, a diaphragm chamber, pneumatic means for connecting the diaphragm, so as to lift the valve, and means for allowing the air below the diaphragm to gradually escape, and thereby regulate the automatic closure of the drop or like valve.

11,010 of 1906.—G. Whitaker: *Hinges for Skylights and Roof Windows.*

This relates to a hinge for skylights and roof windows, and comprises a bar in the shape of the letter T made of iron, steel, or other similar hard metal, which bar is fixed to the inside of both sides of the window frame by the horizontal portion of the T bar by means of screws or rails. At the lower end of the vertical portion of the T bar is attached, by means of a set screw, a grooved wheel or pivot which fits into an open end of and travels in a grooved and curved casting made of similar hard metal as aforesaid, and which grooved curved casting is fixed by means of screws or nails to the inside of the lining on which the window rests when shut. The window is prevented from sliding forward by a bar of wood or iron fixed on to the outside part of the heel of the window.

16,055 of 1906.—F. E. Nelson and G. W. Tribbey: *Gates.*

This consists in the combination with a gate-post of a casting secured to the post near its lower end, and having a vertically projecting pin, a link pivotally mounted on said pin, said link having a vertically pivoting stud or pin, a rod or bar rigidly secured to one end of the said link and projecting upward, a casting secured to the post and surrounding the aforesaid rod near its upper end, such rod having at its upper end a mitre gear, a gate the rear bar of which is pivotally mounted at its lower end on the vertical pin of the link, and passes at its upper end through an eye offset to one side from the upper casting, a stud projecting from the gate-post, a bar pivotally mounted at its centre on said stud, said bar having a segmental mitre gear on its lower edge meshing with the gear on the aforesaid rod, a weighted block mounted to slide on said pivoted bar, and means connected with the said block to cause the bar to swing on its pivot and rotate the rod having the mitre gear at its upper end, and thus cause the gate to tilt and unlatch and swing open or closed.

14,541 of 1906.—W. Harding, jun.: *Ball and Float Valves.*

This relates to ball and float valves, and is characterised by an adjustable screw plug fitted in a shell working horizontally in the body of the valve, the invention also consisting in the combination therewith of a horizontally moving valve and grid in the inlet end of the body.

18,782 of 1906.—W. J. Gibson: *Domestic Fire-places.*

This relates to a domestic fire-place, and consists of a grate part of which is sloped outwardly and towards the rear level part, and a boiler provided over this rear part of the grate, and forming beneath it a combustion chamber over that part of the grate without inlets for air except through the depth of the fuel bed.

18,533 of 1906.—T. M. McAlpine: *Concrete caissons or cylinders.*

This relates to a concrete caisson or cylinder, and consists in providing a caisson with any number of upwardly projecting rods which preferably project above the top of the water level. Each superimposed course is provided with corresponding holes therethrough, the arrangement being such that each course can be threaded on to the rods and guided down to the position required.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

January 14.—By G. A. McDowall (at Stratford).

Plaistow.—95 to 101 (odd), Balaam-st. (s.), u.t. 75 yrs., g.r. 24*l.*, y.r. 122*l.*	£910
7 and 9, Balaam-st. (s.), f., including goodwill	1,250
Upton Park.—5, St. Stephens-rd., f., e.r. 39*l.*	305

January 16.—By Dolman & Pearce (at Camden Town).

Hampstead.—2, Eaton Villas, u.t. 41 yrs., g.r. 3*l.*, e.r. 60*l.*	550

January 22.—By J. T. Skelding.

Raynes Park.—West Barnes-la., three freehold building sites	245

January 23.—By May & Philpot.

Brixton.—61 and 63, Arlingford-rd., u.t. 68 yrs., g.r. 17*l.*, y.r. 71*l.*	490

By F. Varley & Son.

Stroud Green.—3, Dashwood-rd., u.t. 73 yrs., g.r. 7*l.* 7s., e.r. 42*l.*	350

By T. B. Westacott.

Kentish Town.—3, 5, and 7, Leybourne-rd., u.t. 31 yrs., g.r. 15*l.*, w.r. 147*l.* 19s.	600
Holloway.—51, Freegrove-rd., u.t. 60 yrs., g.r. 5*l.*, e.r. 52*l.*	420

January 24.—By H. J. BLISS & SONS.

Whitechapel.—138 to 154 (even), Old Montague-st. (s.), u.t. 84 yrs., g.r. 78*l.*, w.r. 547*l.* 6s.,	£2,860
Leyton.—38 to 58 (even), Dawlish-rd., f., w.r. 214*l.* 10s.	1,580
Forest Gate.—24, 29, and 31, Fowler-rd., f., w.r. 65*l.*	465
Victoria Park.—79, Gore-rd., u.t. 46¾ yrs., g.r. 6*l.* 10s., w.r. 58*l.* 4s.	410
Stratford.—159, Chobham-rd. (s.), u.t. 74 yrs., g.r. 7*l.* 10s., y.r. 47*l.* 10s.	390
Sydenham.—198, Sydenham rd. (s.), u.t. 54 yrs., g.r. 8*l.* 10s., y.r. 40*l.*	260
Stratford.—54 to 68 (even), Keogh-rd, f., w.r. 195*l.*	1,280
Bethnal Green.—3, Primrose st., f., w.r. 23*l.* 8s.	180
24, 25, and 26, Cordova-rd., u.t. 41½ yrs., g.r. 10*l.* 17s. 6d., w.r. 89*l.* 14s.	500

By CHESTERTON & SONS.

Pimlico.—5, 7, and 13 Gillingham-st., u.t. 17 yrs., g.r. 15*l.*, y.r. 120*l.*	880

By ROWLAND ELLIS & WOOD.

Dulwich.—1, Sydney-villas, u.t. 75 yrs., g.r. 6*l.* 10s., y.r. 28*l.*	275

By GEO. GOULDSMITH, SON, & CO.

South Kensington.—9, 11, 13, 15, and 17, Rutland-gate, u.t. 28 yrs., g.r. 66*l.*, y.r. 1,405*l.* (in lots)	15,190

By C. C. & T. MOORE.

Ilford.—41 and 43, High-st. (s.), f., w.r. 53*l.* 6s.	490
Green Lanes, four cottages, yard and stabling, f., w.r. 66*l.* 6s.	650
Manor Park.—29, 31, and 33, Greenhill-gr., f., w.r. 66*l.* 8s.	675
East Ham.—30, Nelson-rd., f., w.r. 24*l.* 14s.	175
Limehouse.—210, 212, and 214, Rhodeswell-rd., f., w.r. 55*l.* 18s.	490
Poplar.—16, Cotton-st., w.r. 27*l.* 6s.	305
Stepney.—125, 127, and 129, Duckett-st., f., w.r. 81*l.* 18s.	495

January 25.—By DAVID J. CHATTELL & SONS.

Hampstead.—83, Adelaide-rd., u.t. 40¾ yrs., g.r. 3*l.*, y.r. 60*l.*	510
Bromley, Kent.—5 and 7, Nightingale-la., u.t. 71½ yrs., g.r. 6*l.*, w.r. 46*l.* 16s.	400

By VINCENT S. LEIGH.

Clapton.—36, Colenso-rd., u.t. 76 yrs., g.r. 6*l.*, w.r. 39*l.*	225
Southall.—6, Trinity-rd., f., w.r. 20*l.* 16s.	180

By WALTER WINDRUM.

Willesden.—Strode-rd., f g.r. 32*l.* 10s., reversion in 84 yrs.	705
Canning Town.—2, 4, 6, and 8, Cross-st., (s.), u.t. 70 yrs., g.r. 22*l.*, w.r. 119*l.* 12s.	475

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; l.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold, p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. beerhouse; p.h. for public-house; o. for office; s. for shops; ct. for court.

MEETINGS.

SATURDAY, FEBRUARY 2.

Sanitary Inspectors' Association.—Twenty-fourth Annual Dinner, Venetian Chamber, Holborn Restaurant, 6 p.m.

MONDAY, FEBRUARY 4.

Royal Institute of British Architects.—(1) To announce the name of the person the Council propose to submit as a fit recipient of the Royal Gold Medal, 1907. (2) The President, Mr. Thomas E. Collcutt, to deliver an address to Students. (3) To read a Criticism of the Works submitted for the Prizes and Studentships 1906-1907. (4) At the conclusion of the above the Presentation of Prizes will be made by the President. 8 p.m.

University of London (Imperial Institute-road).—Mr. Banister Fletcher on "Roman Theatres and Amphitheatres." 8 p.m.

London County Council School of Building (Ferndale-road, Clapham, S.W.).—(Lectures and Demonstrations in connexion with stone and wood-carving classes, by Professor Beresford Pite, assisted by Messrs. S. R. Cameron and C. Burgess.)—"Renaissance Architecture and Carving," with lantern views. 7.30 p.m.

Liverpool Architectural Society.—Mr. Geoffrey Lucas, on "Inexpensive Cottages." 6 p.m.

Society of Engineers.—(1) The President for the past year, Mr. Maurice Wilson, will present the Premiums awarded for Papers read during the year. (2) The President for the year 1907, Mr. Richard St. George Moore, will deliver his Inaugural Address. 7.30 p.m.

TUESDAY, FEBRUARY 5.

University College (Ten Lectures, arranged in Conjunction with the London County Council).—"The Seven Ages of Architecture," by Professor F. M. Simpson. IV.—"Byzantine." 8 p.m.

Society of Designers.—Mr. J. D. Crace on "Purpose in Colour Decoration," illustrated by lantern slides. 8 p.m.

Northern Architectural Association.—Mr. S. Addison Smith on "Specifications and Contracts." 7.30 p.m.

Institution of Civil Engineers.—Col. R. E. B. Crompton, C.B., M.Inst.C.E., on "Modern Motor-Vehicles." 8 p.m.

WEDNESDAY, FEBRUARY 6.

Architectural Association Discussion Section.—Mr. T. L. Dale on "Architecture and the Public." 7.30 p.m.

Edinburgh Architectural Association (Associates' Room).—Mr. A. R. Myers on "Materials." 8 p.m.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

Royal Archæological Institute.—Mr. Charles E. Keyser, M.A., F.S.A., on "A Day's Excursion Among the Churches of South-East Norfolk," with lantern illustrations. 4 p.m.

THURSDAY, FEBRUARY 7.

Institute of Builders.—Mr. H. Arthur Bartlett on Tube Railway Construction." 4 p.m.

London Master Builders' Association.—Annual dinner, The Whitehall Rooms, Hôtel Métropole, Charing Cross, 6.30 p.m.

Royal Institution.—Major P. A. Macmahon, D.Sc., on "Standard of Weights and Measures."—II. 3 p.m.

Institution of Electrical Engineers.—(1) Conclusion of discussion on Mr. Clifford C. Paterson's paper on "Investigations on Light Standards and the Present Condition of the High-Voltage Glow Lamp." (2) "Comparative Life Tests on Carbon, Nernst, and Tantalum Incandescent Lamps Using Alternating Currents." by Messrs. H. F. Haworth, T. H. Matthewman, and D. H. Ogley. 8 p.m.

FRIDAY, FEBRUARY 8.

Architectural Association.—Mr. Mervyn E. Macartney on "Regent-street." 7.30 p.m.

Glasgow Technical College Architectural Craftsmen's Society.—Mr. A. Scott on "Foundations." 8 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. Claude Pain on "The Reconstruction of a Swing-Bridge on the Southwold Railway." 8 p.m.

SATURDAY, FEBRUARY 9.

Junior Institution of Engineers.—Anniversary dinner, Hotel Cecil.

Aberdeen Architectural Association.—Mr. W. Kelly on "The Old Lead Work of Aberdeen." 7.30 p.m.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance. The Editor cannot undertake to read and consider articles offered for acceptance unless they are type-written.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.	
Hard Stocks	1	8	0	per 1000 alongside, in river.
Rough Stocks and Grizzles	1	6	0	" " "
Picked Stocks for Facings	2	10	0	" delivered.
Flettons	1	8	0	" at railway depôt.
Red Wire Cuts	1	14	0	" " "
Best Fareham Red	3	12	0	" " "
Best Red Pressed Ruabon Facing	5	0	0	" " "
Best Blue Pressed Staffordshire	3	15	0	" " "
Do. Bullnose	4	0	0	" " "
Best Stourbridge Fire Bricks	3	14	0	" " "
GLAZED BRICKS.				
Best White and Ivory Glazed Stretchers	12	0	0	" " "
Headers	11	0	0	" " "
Quoins, Bullnose, and Flats	16	0	0	" " "
Double Stretchers	19	0	0	" "
Double Headers	16	0	0	" " "
One Side and two Ends	19	0	0	" " "
Two Sides and one End	20	0	0	" " "
Splays, Chamferred, Squints	20	0	0	" " "
Best Dipped Salt Glazed Stretchers, and Header	12	0	0	" " "
Quoins, Bullnose, and Flats	14	0	0	" " "
Double Stretchers	15	0	0	" " "
Double Headers	14	0	0	" " "
One Side and two Ends	15	0	0	" " "
Two Sides and one End	15	0	0	" " "
Splays, Chamferred, Squints	14	0	0	" " "
Second Quality White and Dipped Salt Glazed	2	0		" less than best.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	6	" "
Best Portland Cement	23	0	per ton, "
Best Ground Blue Lias Lime	19	0	" "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

	s.	d.	
BATH STONE—delivered on road waggons, Paddington Depôt	1	6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt	1	8½	" "
PORTLAND STONE (20 ft. average)—Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	1	" "
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	2½	" "

	s.	d.	
Ancaster in blocks	1	10	per ft. cube, deld. rly. depot.
Bear "	1	6	" "
Greenshill "	1	10	" "
Darley Dale in blocks	2	4	" "
Red Corsehill "	2	2	" "
Closeburn Red Freestone	2	0	" "
Red Mansfield "	2	4	" "

YORK STONE—*Robin Hood Quality.*

Scappled random blocks.	2	10	" "
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	per ft. super., "
6 in. rubbed two sides ditto, ditto	2	6	" "
3 in. sawn two sides slabs (random sizes)	0	11½	" "
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	" "
1½ in. to 2 in. ditto, ditto	0	6	" "

HARD YORK—

Scappled random blocks.	3	0	per ft. cube, "
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8	per ft. super., "
6 in. rubbed two sides ditto	3	0	" "
3 in. sawn two sides slabs (random sizes)	1	2	" "
2 in. self-faced random flags	0	5	" "

SLATES.

In. In.	£	s.	d.	
40×10 best blue Bangor	13	2	6	per 1000 of 1200 sup. ft.
20×12 " "	13	17	6	" "
20×10 first quality "	13	0	0	" "
20×12 " "	13	15	0	"
16×8 " "	7	5	0	" "
20×10 best blue Portmadoc	12	12	6	" "
16×8 " "	6	12	6	" "
20×10 best Eureka unfading green	15	17	6	" "
20×12 " "	18	7	6	" "
18×10 " "	13	5	0	" "
16×8 " "	10	5	0	"
20×10 permanent green	11	12	6	" "
18×10 " "	9	12	6	" "
16×8 " "	6	12	6	" "

TILES.

	s.	d.	
Best plain red roofing tiles	42	0	per 1000 at rly. depôt
Hip and Valley tiles	3	7	per doz. "
Best Broseley tiles	50	0	per 1000 "
Do. Ornamental tiles	52	6	" "
Hip and Valley tiles	4	0	per doz. "
Best Ruabon red, brown, or brindled do. (Edwards)	57	6	" "
Do. Ornamental do.	60	0	" "
Hip tiles	4	0	per doz. "
Valley tiles	3	0	"
Best Red or Mottled Staffordshire do. (Peakes)	51	9	per 1000 "
Do. Ornamental do.	54	6	" "
Hip tiles	4	1	per doz. "
Valley tiles	3	8	" "
Best "Rosemary" brand plain tiles	48	0	per 1000 "
Best Ornamental tiles	50	0	" "
Hip tiles	4	0	per doz. "
Valley tiles	3	8	" "
Best "Hartshill" brand plain tiles, sand-faced	50	0	per 1000 "
Do. pressed	47	6	" "
Do. Ornamental do.	50	0	" "
Hip tiles	4	0	per doz. "
Valley tiles	3	6	" "

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	13	10	0	...	15	0	0
Deals: best 3 by 9	13	0	0	...	14	0	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	0	0	...	12	0	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.			
Deals: seconds	1	0	0	less than best.			
Battens: seconds	0	10	0	" "			
2 in. by 4 in. and 2 in. by 6 in.	9	0	0	...	10	0	0
2 in. by 4½ in. and 2 in. by 5 in.	8	10	0	...	9	10	0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.			
¾ in.	1	0	0	"			

	At per load of 50 ft.						
Fir timber: best middling Danzig or Memel (average specification)	4	10	0	...	5	0	0
Seconds	4	0	0	...	4	10	0
Small timber (8 in. to 10 in.)	3	12	6	...	3	15	0
Small timber (6 in. to 8 in.)	3	0	0	...	3	10	0
Swedish balks	2	10	0	...	3	0	0
Pitch-pine timber (30 ft. average)	4	0	0	...	4	15	0

JOINERS' WOOD.	At per standard. £	s.	d.		£	s.	d.
White Sea: first yellow deals, 3 in. by 11 in.	24	0	0	...	25	0	0
3 in. by 9 in.	22	0	0	..	23	0	0
Battens, 2½ in. and 3 in. by 7 in.	16	10	0	..	18	0	0
Second yellow deals, 3 in. by 11 in.	18	10	0	...	20	0	0
" " 3 in. by 9 in.	17	10	0	...	19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	...	14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	13	10	0	...	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	0	0	...	12	0	0

WOOD (*continued*).

JOINERS' WOOD—(*continued*)—	At per standard. £	s.	d.		£	s.	d.
Petersburg first yellow deals, 3 in. by 11 in.	21	0	0	...	22	10	0
Do. 3 in. by 9 in.	18	0	0	...	19	10	0
Battens	13	10	0	...	15	0	0
Second yellow deals, 3in. by 11in.	16	0	0	...	17	0	0
Do. 3 in. by 9 in.	14	10	0	...	16	0	0
Battens	11	0	0	...	12	10	0
Third yellow deals, 3 in. by 11 in.	13	0	0	...	14	0	0
Do. 3 in. by 9 in.	12	10	0	...	14	0	0
Battens	10	0	0	...	11	0	0
White Sea and Petersburg—							
First white deals, 3 in. by 11 in.	14	10	0	...	15	10	0
" " 3 in. by 9 in.	13	10	0	...	14	10	0
Battens	11	0	0	...	12	0	0
Second white deals, 3 in. by 11 in.	13	10	0	...	14	10	0
" " 3 in. by 9 in.	12	10	0	...	13	10	0
" " battens	10	0	0	...	11	0	0
Pitch-pine: deals	18	0	0	...	21	0	0
Under 2 in. thick extra	0	10	0	...	1	0	0
Yellow Pine—First, regular sizes	44	0	0	upwards.			
Oddments	32	0	0		"		
Seconds, regular sizes	33	0	0		"		
Yellow Pine oddments	28	0	0		"		
Kauri Pine—Planks, per ft. cube	0	3	6	...	0	5	0
Danzig and Stettin Oak Logs—							
Large, per ft. cube	0	3	0	...	0	3	6
Small " "	0	2	6	...	0	2	9
Wainscot Oak Logs, per ft. cube	0	5	6	...	0	6	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	8½	...	0	0	9½
¾ in. do. do	0	0	7	...		—	
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	9	...	0	1	0
Selected, Figury, per ft. super. as inch	0	1	6	...	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1	0
Teak, per load	17	0	0	...	22	0	0
American Whitewood Planks, per ft. cube	0	4	0	...	0	5	0
Prepared Flooring, etc.—	Per square.						
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17	6
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	...	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	...	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15		...	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13	6
1 in. by 7 in. " "	0	14	0	...	0	18	0
¾ in. by 7 in. white " "	0	10	0	...	0	11	6
1 in. by 7 in. " " "	0	12	9	...	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	7	7	6	...	7	15	0
Compound Girders, ordinary sections	9	10	0	...	10	10	0
Steel Compound Stanchions	12	5	0	...	13	5	0
Angles, Tees, and Channels, ordinary sections	9	5	0	...	10	5	0
Flitch Plates	9	5	0	...	10	5	0
Cast Iron Columns and Stanchions including ordinary patterns	8	0	0	...	9	0	0

METALS.

	Per ton, in London. £	s.	d.		£	s.	d.
IRON—							
Common Bars	8	10	0	...	9	0	0
Staffordshire Crown Bars, good merchant quality	9	0	0	...	9	10	0
Staffordshire "Marked Bars"	11	0	0	...		—	
Mild Steel Bars	9	5	0	...	9	10	0
Hoop Iron, basis price	9	10	0	...	9	15	0
" " Galvanised	17	10	0	...		—	
(*And upwards, according to size and gauge.)							
Sheet Iron Black—							
Ordinary sizes to 20 g.	10	0	0	...		—	
" " 24 g.	11	0	0	...		—	
" " 26 g.	12	10	0	...		—	
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	14	10	0	...		—	
Ordinary sizes to 22 g. and 24 g.	15	0	0	...		—	
" " 26 g.	15	10	0	...		—	
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	17	10	0	...		—	
" " 22 g. and 24 g.	18	0	0	...		—	
" " 26 g.	19	10	0	...		—	
Galvanised Corrugated Sheets—							
Ordinary sizes 6 ft. to 8 ft. 20 g.	14	10	0	...		—	
" " 22 g. and 24 g.	14	15	0	...		—	
" " 26 g.	16	0	0	...		—	
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	12	0	0	...		—	
Best Soft Steel Sheets, 22 g. & 24 g.	13	0	0	...		—	
" " " 26 g.	15	0	0	...		—	
Cut Nails, 3 in. to 6 in.	10	0	0	...	10	10	0
(Under 3 in., usual trade extras.)							

LEAD, &c.

	Per ton, in London. £	s.	d.		£	s.	d.
LEAD—Sheet, English, 3lb. and up.	23	0	0	...		—	
Pipe in coils	23	10	0	...		—	
Soil pipe	25	10	0	...		—	
Compo pipe	26	10	0	...		—	
ZINC—Sheet—							
Vieille Montagne ton	34	5	0	...		—	
Silesian	34	0	0	...		—	
COPPER—							
Strong Sheet per lb.	0	1	4	...		—	
Thin "	0	1	5	...		—	
Copper nails "	0	1	3	...		—	
BRASS—							
Strong Sheet "	0	1	2	...		—	
Thin "	0	1	3	...		—	
TIN—English Ingots "	0	1	11	...		—	
SOLDER—Plumbers' "	0	0	9	...		—	
Tinmen's "	0	0	11½	...		—	
Blowpipe "	0	1	1	...		—	

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

15 oz. thirds	2½d.	per ft.	delivered.
" fourths	1¾d.	"	"
21 oz. thirds	3¼d.	"	"
" fourths	2¼d.	"	"
26 oz. thirds	4¼d.	"	"
" fourths	3¼d.	"	"
32 oz. thirds	5d.	"	"
" fourths	4¼d.	"	"
Fluted Sheet, 15 oz.	3¾d.	"	"
" 21 oz.	4¾d.	"	"

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

⅛ Hartley's	2½d.	per ft.	delivered.
⅛ "	2¾d.	"	"
¼ "	3d.	"	"
Figured and Oxford Rolled "Oceanic" Glass, white ...	4d.		
Do. " tinted ...	5½d.	"	"

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	1	11
" " " in barrels	"	0	2	0
" " " in drums	"	0	2	2
Boiled " " in pipes	"	0	2	1
" " " in barrels	"	0	2	2
" " " in drums	"	0	2	4
Turpentine in barrels	"	0	4	3
" in drums	"	0	4	6
Genuine Ground English White Lead	per ton	25	10	0
Red Lead, Dry	"	24	10	0
Best Linseed Oil Putty	per cwt.	0	7	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish	0	18	0
White Copal Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	6
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

TERMS OF SUBSCRIPTION.

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

ABERDEEN.—For laying granite causeway at Richmond-street, between Kintore-place and Leadside-road, for the Town Council. Mr. W. Dyack, Burgh Surveyor, Town House, Aberdeen:—

Causeways part of Richmond-street.
J. McAdam & Sons, Contractors, Aberdeen* £161 19 6

Causeways part of Mid Stocket-road.
J. McAdam & Sons, Contractors, Aberdeen* 2,740 0 0

ABERYSTWYTH.—For the equipment of the new Davies Memorial Chemical Laboratories, for the Council of the University College of Wales. Mr. A. W. S. Cross, architect, 46, New Bond-street, London, W.:—
Willcock & Co., Wolverhampton £9,263

BECKENHAM.—For unclimbable fencing and gates, for the Urban District Council. Mr. J. A. Angell, Surveyor:—

Vaughan & Cook	£546	0	0
Loughborough Iron Works	544	7	0
G. E. Barnes	504	12	9
Bostwick Gate Co.	441	6	6
Lockerbie & Wilkinson	396	19	10
J. Priest & Sons	379	0	2
Boulton & Paul	375	1	0
Hill & Smith	374	6	9
W. Miller & Sons	£361	16	5
W. J. Mullings	347	5	10
O. Jones & Co.	345	0	0
Haywood & Sons	328	14	4
J. Elwell	297	3	1
Wenham & Waters	291	15	0
W. Gratrix & Sons	284	15	3
E. J. Raybould‡	273	5	7

‡ Recommended for acceptance.

BRISTOL.—For alterations to No. 22, Cotham New-road, for the Moravian Mission College. Messrs. La Trobe & Weston, architects, 44, Corn-street, Bristol:—

T. C. Harvey	£569	7	0
Woodward	555	0	0
Hodges	549	4	6½
W. Foster	549	0	0
Preece	546	0	0
T. R. Lewis	545	0	0
Clark & Sons	520	0	0
Forse	515	0	0
Williams & Sons	499	0	0
Hunt	497	0	0
F. Chown	£489	0	0
E. Love	489	0	0
R. Wilkins & Sons	484	0	0
Walters & Son	474	0	0
H. G. Jones	469	0	0
A. E. Denby & Co.	445	0	0
Downs & Son	440	0	0
W. & J. Bennett*	430	0	0

BATH.—For repairing and lining two reservoirs at Batheaston, and for constructing a straining well, etc., for the Waterworks Committee of the Corporation. Mr. Jules D. Young, Waterworks Engineer, Guildhall, Bath. Quantities by Mr. Jules Dent Young, Assoc.M.Inst.C.E.

J. Bird & Son	£4,805	19	10
E. Tabor	4,697	4	6
A. Wills & Sons	4,576	0	0
Mould Bros.	4,450	0	0
J. Moffat	4,428	15	8
F. J. Amery	4,382	19	0
E. Bentley & Son	4,339	10	0
J. Riley	4,311	14	0
Chick, Garden, & Co.	4,251	0	0
E. Chancellor	4,149	11	8
Brown & Hiscott	3,999	11	8
Erwood & Morris	3,694	7	10
J. Moran & Son	3,562	0	0
T. Ambrose	3,555	2	8
J. A. J. Colborn	3,406	6	0
Hayward & Wooster, Bath*	3,301	15	2
R. H. B. Neal	3,299	0	0
E. Price	2,899	0	0

BURNHAM.—For erecting new schoolroom and additions to the Wesleyan Church. Messrs. La Trobe & Weston, architects, 44, Corn-street, Bristol:—

Denby & Co.	£1,698	0	
Forse & Sons	1,618	0	
Stephens, Bastow, & Co.	1,583	0	
E. C. Harvey	1,492	14	
F. Chown	1,418	0	
R. J. Stead	1,397	0	
E. Love	1,387	0	
Walters & Son	1,387	0	
H. Pittard & Son	1,385	0	
Chick, Garden, & Co.	£1,365	0	
W. J. Pople	1,290	0	
E. Preece	1'266	0	
Clark & Sons	1,242	10	
T. Stockham	1,189	0	
J. H. Tapscott	1,189	0	
J. E. Fursland	1,180	0	
H. J. Pollard*	1,125	0	

[Three lower tenders received.]

CLACTON-ON-SEA.—For a model laundry. Convalescent-road, Clacton-on-Sea, for Mr. R. Hariro. Messrs. Baker & Wrightson, architects. Quantities by architects:—

Chambers	£1,664	Ellis & Co.	£1,530
Burch, jun.	1,660	Canler	1,470
Farr	1,598	Donzell	1,469
Dobson & Son	1,585	Marrable	1,403
Gladwell	1,577	McKay	1,398
Everett	1,530	H. Smith Clacton*	1,389

[Architect's estimate, £1,371.]

CROYDON.—For private street works in Kendall-avenue and Edgar-road, Sanderstead, for the Rural District Council. Mr. R. M. Chart, Surveyor:—

	Kendall-avenue.	Edgar-road.
Atkins & Co.	£1137	£900 0 0
P. W. Amy	1,025	824 0 0
Free & Sons	815	631 10 0
F. Iles, Mitcham	726*	567 0 0*
W. Langridge	750	600 0 0
J. Mowlem & Co.	1,130	880 0 0
G. G. Rayner	765	660 0 0
Ripley, Strong, & Co	777	602 16 10
F. Yewen	717	579 0 0

GOBOWEN.—For providing and laying 8,500 yds. of water mains in connexion with Gobowen and Whittington water supply, for Oswestry Rural District Council. Messrs. Berrington, Son, & Martin, engineers, Wolverhampton, and 28, Victoria-street, Westminster:—

G. H. York & Co., 75, New-street, Wellington, Salop £2,498 13 2

GUILDFORD.—For new boiler and heating apparatus at the public Baths, for the Town Council. Mr. C. G. Mason, Borough Surveyor, Guildford:—

Stubbs & Son & Hall	£561	3	9
F. A. Smith	549	0	0
Dickinson & Burne, Ltd.	548	0	0
Wenham & Waters, Ltd.	£544	10	0
J. E. Boaz & Co., 176, High-st., Acton, London*	485	0	0

[The question of the dynamo has not yet been considered.]

HORNCHRCH.—For erecting a fire-station, etc., in Billet-lane, for the Parish Council. Mr. E. J. Little, architect, Longfield-gardens, Hornchurch-road, Romford:—

J. F. Holliday	£371	4	3
T. Dockrill	371	0	0
G. Sibthorpe & Son	367	0	0
Partridge Bros.	318	12	0
Dowsing & Davis	£312	10	0
W. E. Westgate	308	5	0
T. J. Bailey, Romford*	304	16	0

KENILWORTH.—For alterations and additions to Woodcote Lodge. Mr. C. M. C. Armstrong, architect, Warwick:—

G. F. Smith & Sons	£1,660 0
E. Smith & Son, Kenilworth*	1,499 18

LEEK (Staffordshire).—For building coalbreaker, wagon tipper, and weighing pits, gas-engine house, tunnel, etc., at Council's gasworks, for the Urban District Council. Mr. W. E. Beacham, C.E., Surveyor, Town Hall, Leek. Quantities by the Surveyor:—

Smith & Sons	£1,288	1	5
J. Heath & Sons	1,066	17	3
T. Grace	1,022	6	5
Barker Bros.	£994	4	0
M. S. Salt, Leek*	985	9	7

LONDON.—For channelling, paving, making-up, etc., of Mount Pleasant-lane and Knightland-road (Upper Clapton), for Hackney Borough Council. Mr. N. Scorgie, Borough Engineer and Surveyor, Town Hall, Hackney, N.E.:—

	Mount Pleasant-lane (from Mount Pleasant-hill northward to Harrington-hill).	Knightland-road.
W. Griffiths & Co., Ltd.	£1,591 17 7	£980 13 1
E. T. Bloomfield	—	899 16 2
G. Porter, 2, Arthur-street, Well-street, Hackney, N.E.*	1,467 13 6	874 9 2

LONDON.—For conveniences at Mountsfield Park, Hither Green, for the London County Council:—

Thomas & Edge	£310	0	
R. Harding & Son	266	10	
H. J. Smith & Son	259	0	
S. T. Stevens	235	0	
Loasby & Salmon, 224, Hither Green-lane, S.E.*	£227	0	

LONDON.—For the supply of a "Cornish" boiler to the London County Council Hammersmith Technical Institute:—

Galloways, Ltd.	£645	J. Thompson, Wolverhampton*	£450
D. Adamson & Co. ..	564		
Spurr, Inman, & Co. .	556		

LONDON.—For four street-working machines, for Southwark Borough Council:—

	Each.
Bayleys, Ltd., Southwark	£117
W. Glover & Sons, Ltd., Warwick*	74

LONDON.—For the supply and delivery of (1) track rails and fastenings, etc., and (2) slot rails and conductor tee rails to be used for the construction or reconstruction for electric traction of further portions of the London County Council's tramways:—

Tenders for Track Rails, etc.

Steel, Peech, & Tozer, Ltd.	£35,675 10 0
P. & W. MacLellan, Ltd.	32,758 2 6
Barrow Haematite Steel Co., Ltd.	31,965 10 0
Bolckow, Vaughan, & Co., Middlesbrough*	31,230 16 0
W. Scott, Ltd.	29,919 0 0
The Lorain Steel Co.....	28,026 10 0
E. Le Bas & Co.‡	27,240 5 0

‡ Incomplete.

[The Chief Engineer's estimate comparable with the tenders, £25,907.]

Tenders for Slot Rails and Conductor Tee Rails.

Barrow Haematite Steel Co., Ltd.	£26,658 15 0
W. Scott, Ltd.	26,087 10 0
Bolckow, Vaughan & Co., Ltd. ..	25,651 5 0
Frodingham Iron & Steel Co., Ltd., near Doncaster*	23,047 0 0
P. & W. MacLellan, Ltd.....	20,993 5 10
E. Le Bas & Co.	20,877 10 0

[The Chief Engineer's estimate comparable with the tenders, £19,310.]

LONDON.—For proposed superstructure, and extensions of steam laundries at the rear of Nos. 47, 49, and 51, Highgate-hill, for Mr. C. Lay, according to the drawings of Mr. George Carter, architect and surveyor, of 513, Holloway-road, N. (being Contract No. 1):—

G. Stevens ...	£1,463 0	Mattock & Parsons	£1,159 0
Spro-son & Babb	1,316 12	Steed & Sons ..	1,109 0
H. Brown....	1,179 0		

[Architect's estimate, £1,120.]

LONDON.—For Lewisham new sorting office:—

		Credit.
Mitson & Co.....	£1,804	£ 7 0
Vigor & Co.....	1,800	10 0
Newell & Leesty.....	1,737	11 10
Denby & Co.	1,726	20 0
Shelbourne & Co.	1,594	25 0
Nicks & Co.	1,550	11 11
Smith & Sons, Ltd.	1,543	18 0
Speechley & Smith	1,541	25 0
Martin, Wells & Co., Ltd..	1,509	—
E. J. Wallis.....	1,525	20 0
Perry Bros.....	1,497	20 0
Staines & Co.....	1,490	15 0
J. Parsons	1,483	10 0
Bulled & Co.	1 498	25 0
Patman & Fotheringham..	1,450	12 0
C. Ansell	1,444	30 0
Pasterfield & English	1,425	14 0
Akers & Co., Ltd.	1,419	16 0
H. Kent	1,397	—
B. E. Nightingale.....	1,451	60 0
Barker & Co., Ltd.....	1,393	10 0
Lousby & Sahmen.....	1,410	30 0
Whitehead & Co., Ltd....	1,388	20 0
Mattock and Parsons....	1,353	27 0
J. Lonsdale.....	1,350	29 0
Galbraith Bros.....	1,340	25 0
F. & G. Foster*.....	1,277	14 0

MERTHYR TYDFIL.—For alterations and additions, building boundary walls, etc., and new playground, at Clwydyfagwyr school, for Education Authority. Mr. J. Llewellin Smith, architect. Quantities by architect:—
E. L. Sullivan, Merthyr Tydfil..... £965 10

NORWICH.—For boot and shoe factory, Norwich, for Messrs. J. Southall & Co., Ltd. Messrs. Morgan & Buckingham, architects, 1, Upper King-street, Norwich:—

Carter & Wright	£17,022 0	J. Youngs & Sons.....	£14,446 0
Hawes & Sons.	15,900 0	H. J. Hannant.	14,387 0
J. S. Smith....	15,400 0	T. Gill.....	13,978 0
H. C. Greengrass	15,386 0	S. W. Utting ..	13,745 10
J. Hurn	15,370 0	T. Yelf	13,469 0
Scarles Bros. ..	14,988 0		
R. Daws & Sons	14,739 0		

[A revised scheme was prepared and a contract has been arranged with T. Yelf for £8,481 7s., his schedule of rates being used to arrive at the Contract amount.]

PLAISTOW.—For constructing retaining walls, etc., Prince Regent's-lane, for West Ham Borough Council:—

Tilbury Contracting Co..	£985 0 0	A. E. Symes..	£405 0 0
H. C. Horswell	583 0 0	Wilkinson & Co.	403 19 7
King & Barker	514 0 0	H. Wood.....	403 0 0
J. F. Holliday	477 15 0	J. G. Horlock & Son	400 0 0
D. T. Jackson	432 6 3	W. E. Westgate	381 0 0
J. Jackson....	419 8 8	Works Manager	328 0 0

STRATFORD.—For additional lavatory accommodation, cloak-rooms, and other alterations at Town Hall, for the Borough Council:—

W. Gregar & Son.....	£2,740 0 0	W. E. Westgate	£2,089 0 0
J. J. Quarterman	2,495 2 3	W. Dennison	2,081 0 0
H. C. Horswill	2,290 0 0	H. Wood	2,080 0 0
Crisp & Jones	2,098 0 0	J. F. Holliday	2,076 0 0
A. E. Symes..	2,090 0 0	Works Manager	1,887 0 0
		J. W. Jerram, East Ham*	1,875 19 2

THATCHAM (Berks).—For pulling down old buildings and erecting new premises, for Messrs. A. & T. Brown. Mr. W. H. Bell, architect, The Market-place, Newbury:—

J. Albury	£527 15 0	Batten Bros...	£385 0 0
H. D. Mayers	500 0 0	Fisher Bros. ..	370 0 0
J. Vickers & Son	431 10 0	Fisher Bros. ..	362 14 10
W. Child	426 13 6	C. Gunter, Thatcham, Berks*.....	340 0 0
T. Plumb	425 0 0		
J. Edwards & Son	410 0 0		

TORPOINT.—For erecting new anteroom, scullery, lavatories, etc., and for heating and renovating hall, for the Trustees of the Good Templars' Hall. Mr. A. J. Abbott, P.A.S.I., architect and surveyor, 31, High-street, Totnes:—

W. J. Stevenson ..	£390 0	A. Sleeman, Torpoint*	£270 0
W. H. Rothery ..	360 0	Whale & Son	261 16
C. Pane.....	344 18		

WAKEFIELD.—For street works in Scarborough-street, for the Corporation:—
Wilson Bros., Wakefield* £248 0 9

WEST MALLING.—For the erection of a villa at London-road, West Malling, for Mr. R. T. Barkaway, Mr. Charlie H. Souter, architect, West Malling:—

E. H. Pye	£494 10	G. Hodges & Son	£457 0
W. H. Allchin....	489 0	R. Langridge*....	435 0
J. A. Davison	482 0		

* WORKINGTON.—For renovating congregational church, for the Trustees. Messrs. Stoker & Nicholson, architects and surveyors, 62, Pow-street, Workington:—
Painter: A. Palmer, Bridge-street‡ .. £44 19 3
Joiner: H. Hawkins, Guard-street‡ .. 20 10 6
Plumber: D. M. Walker, Washington-street‡ 45 9 6
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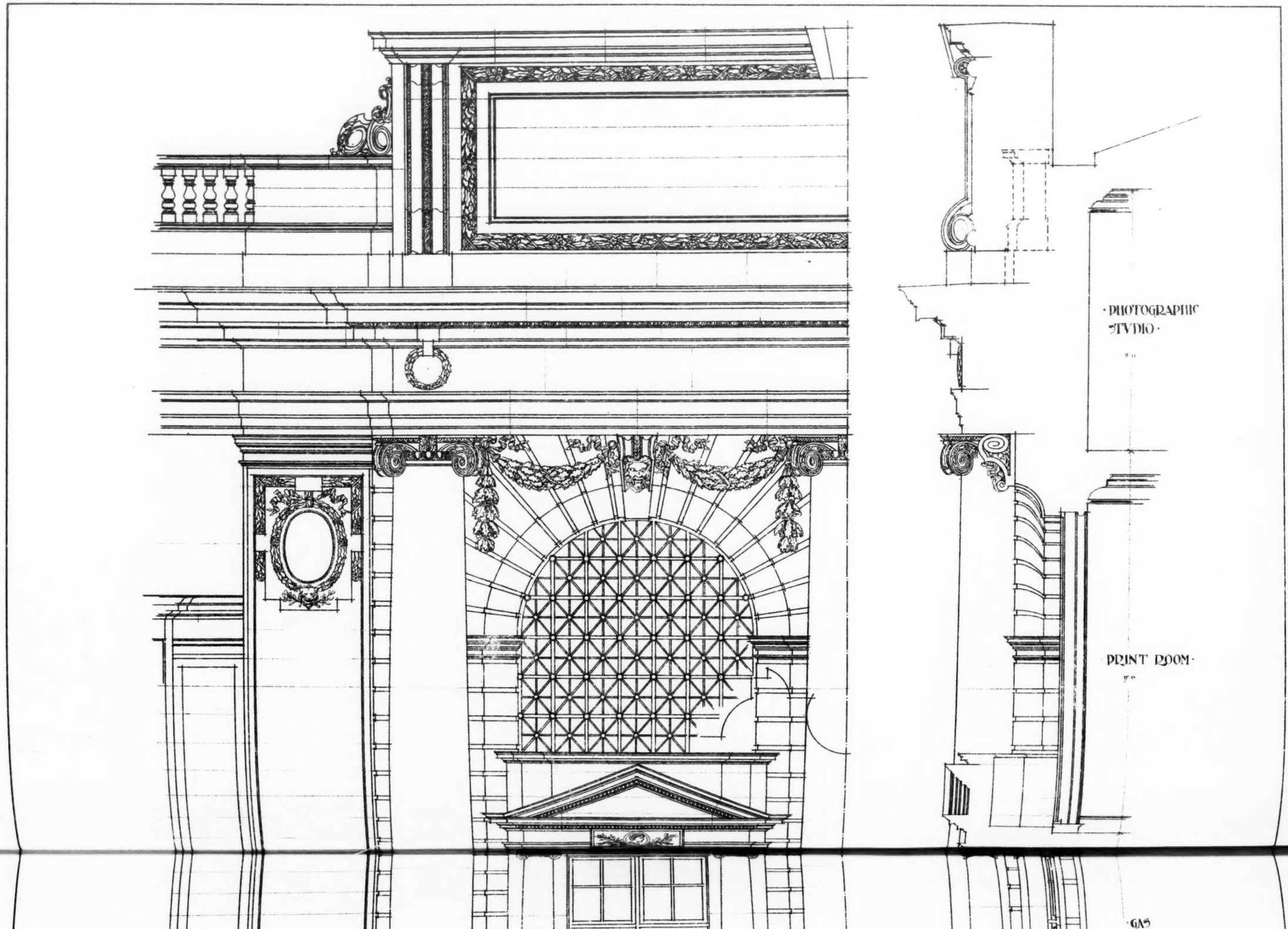
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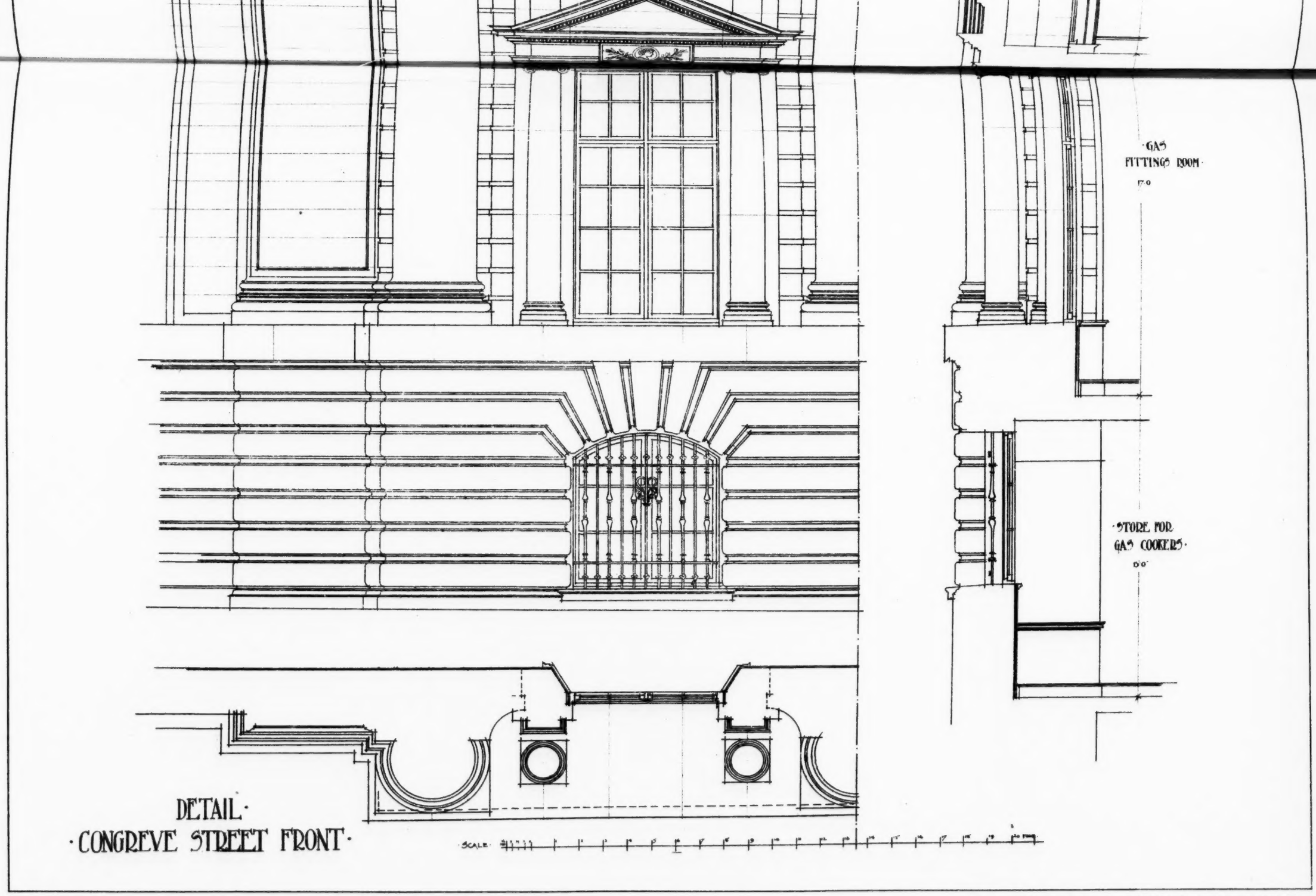

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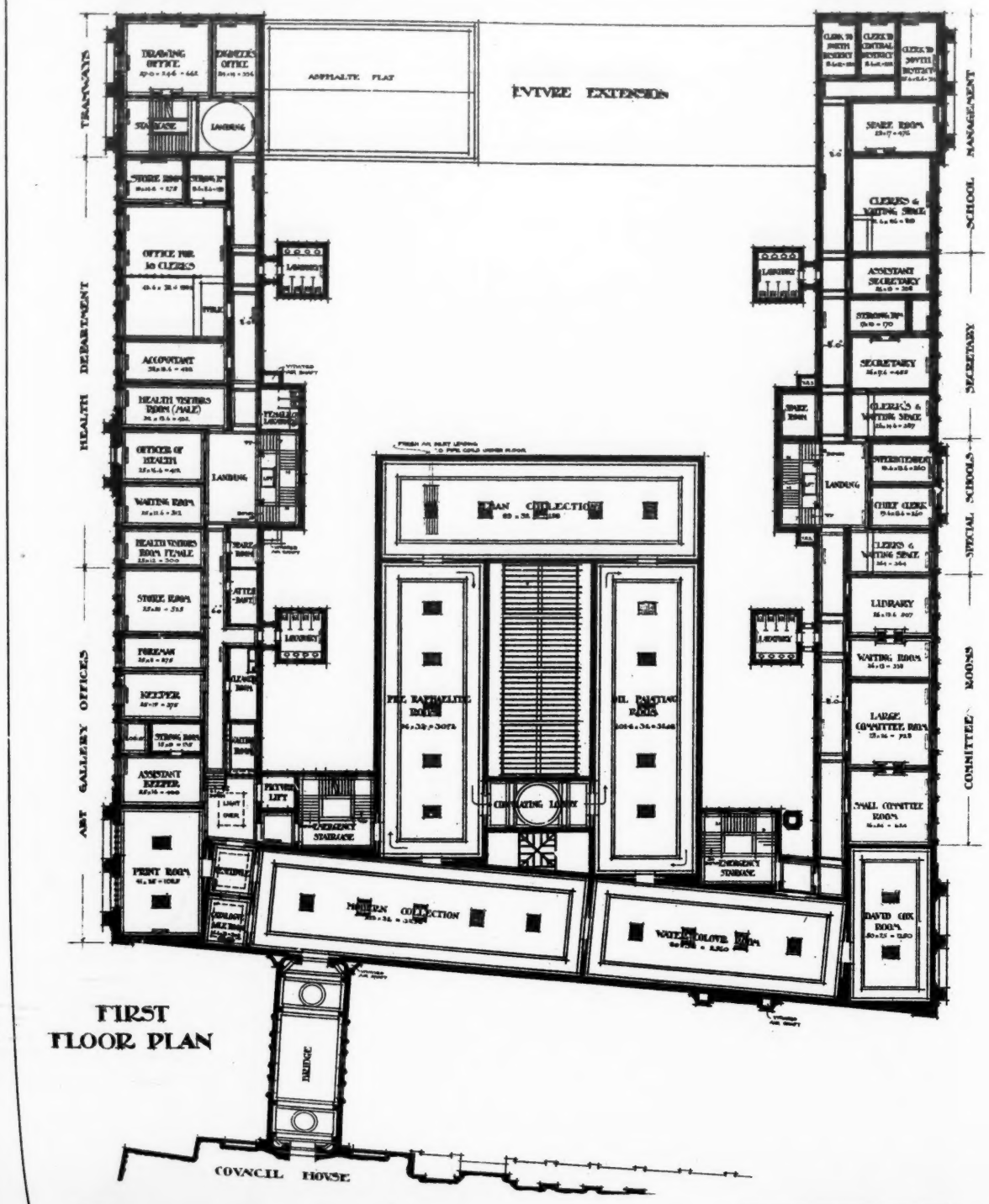

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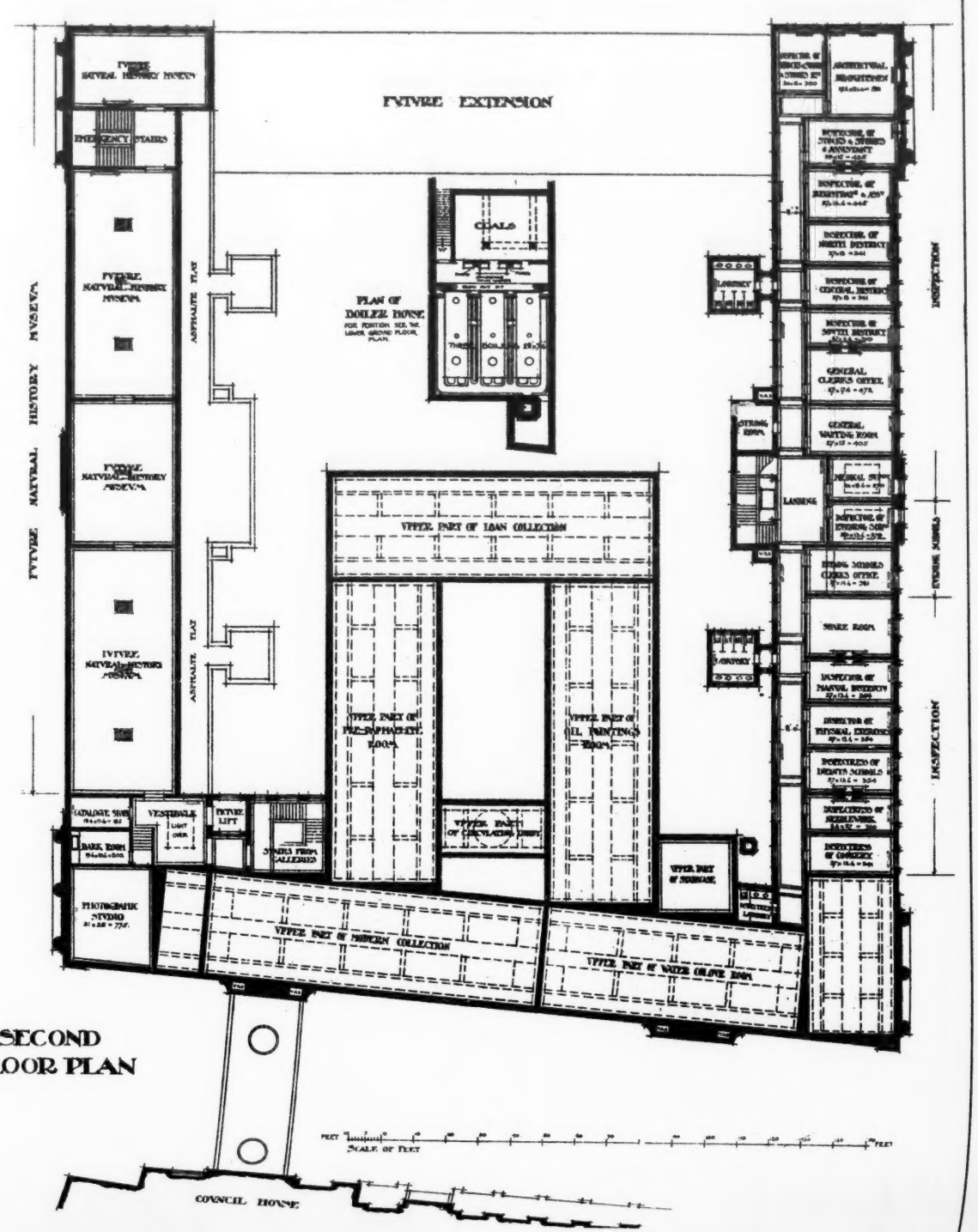
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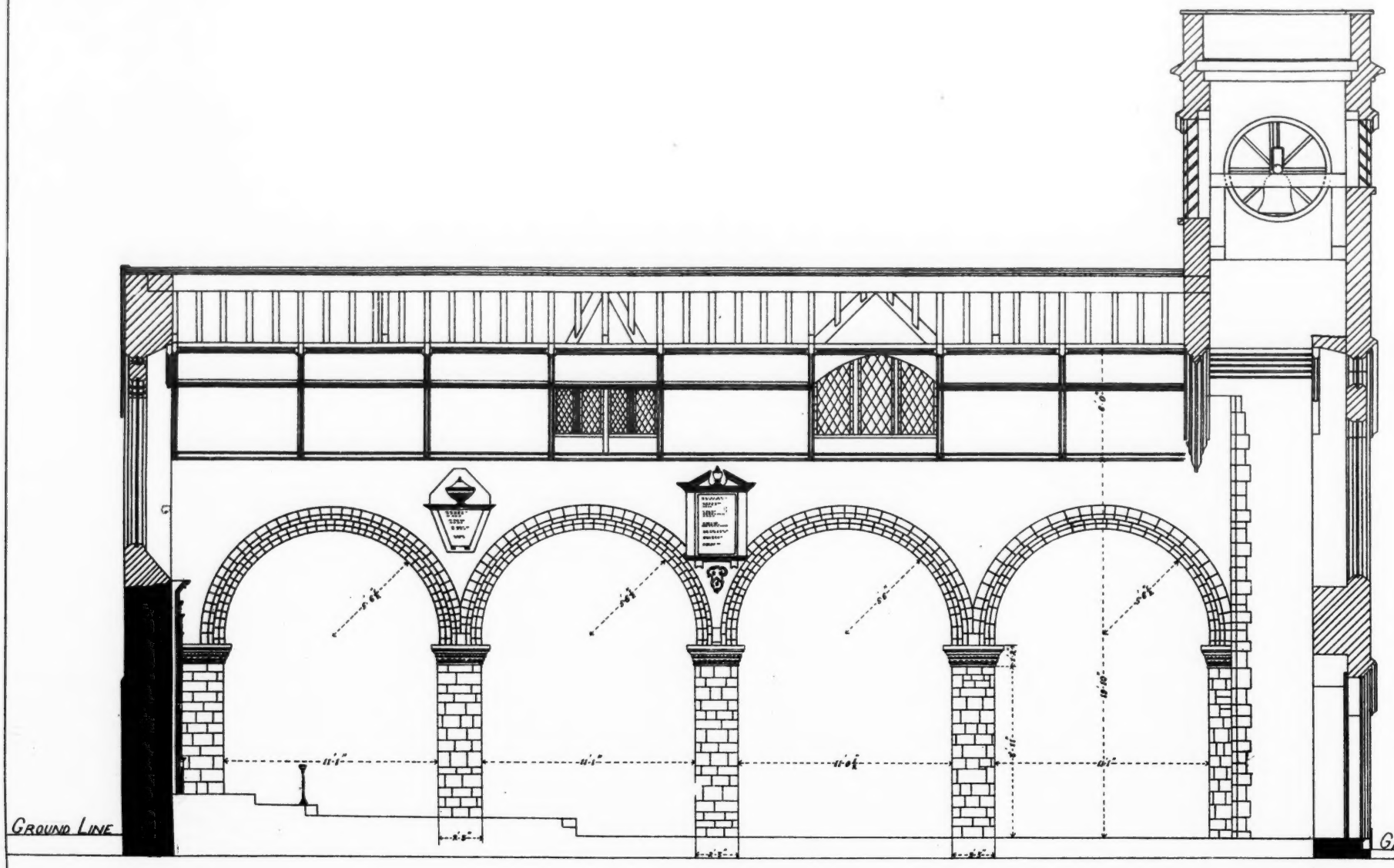

— Dates —

12TH CENTURY

15TH CENTURY

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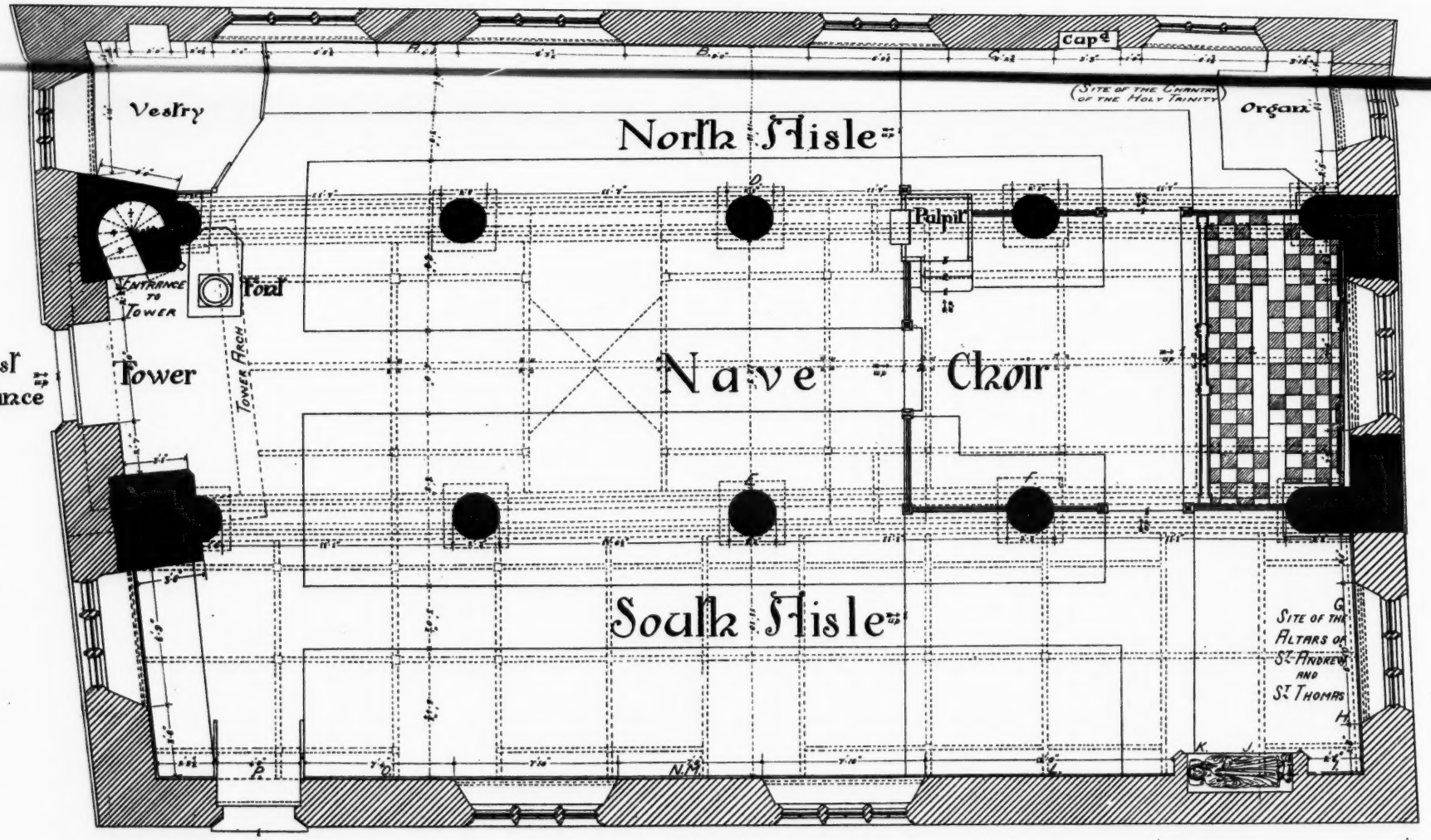
B. DO : THOMAS WALKER, 1628
C. DO : CHRISTOPHER LETHBRIDGE, 1670
D. DO : REV W TANNER, 1830



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D. do : Revᵈ W Tanner, 1830
E. do : Revᵈ Robert Wight, 1778
F. do *: Burnet Patch, 1815
G. do *: Thomas Walker, 1673
H. do : Robert Walker, 1683
I. do : Thomas Lethbridge, 1725
J. Tomb of *: Thomas Andrews, 1518
K. Monument: *Richard Crossing, 1676
L. do *: Nicholas Brooking, 1666
M. do *: John Davy, 1611
N. Brass : Revᵈ G.M. Wilson, 1907
O. Monument: Thomas Walker, 1686
P. Royal Arms

*Past Mayors of Exeter

Ground Plan

— Scale of Feet —

— FEET 10 5 0 10 20 30 FEET —

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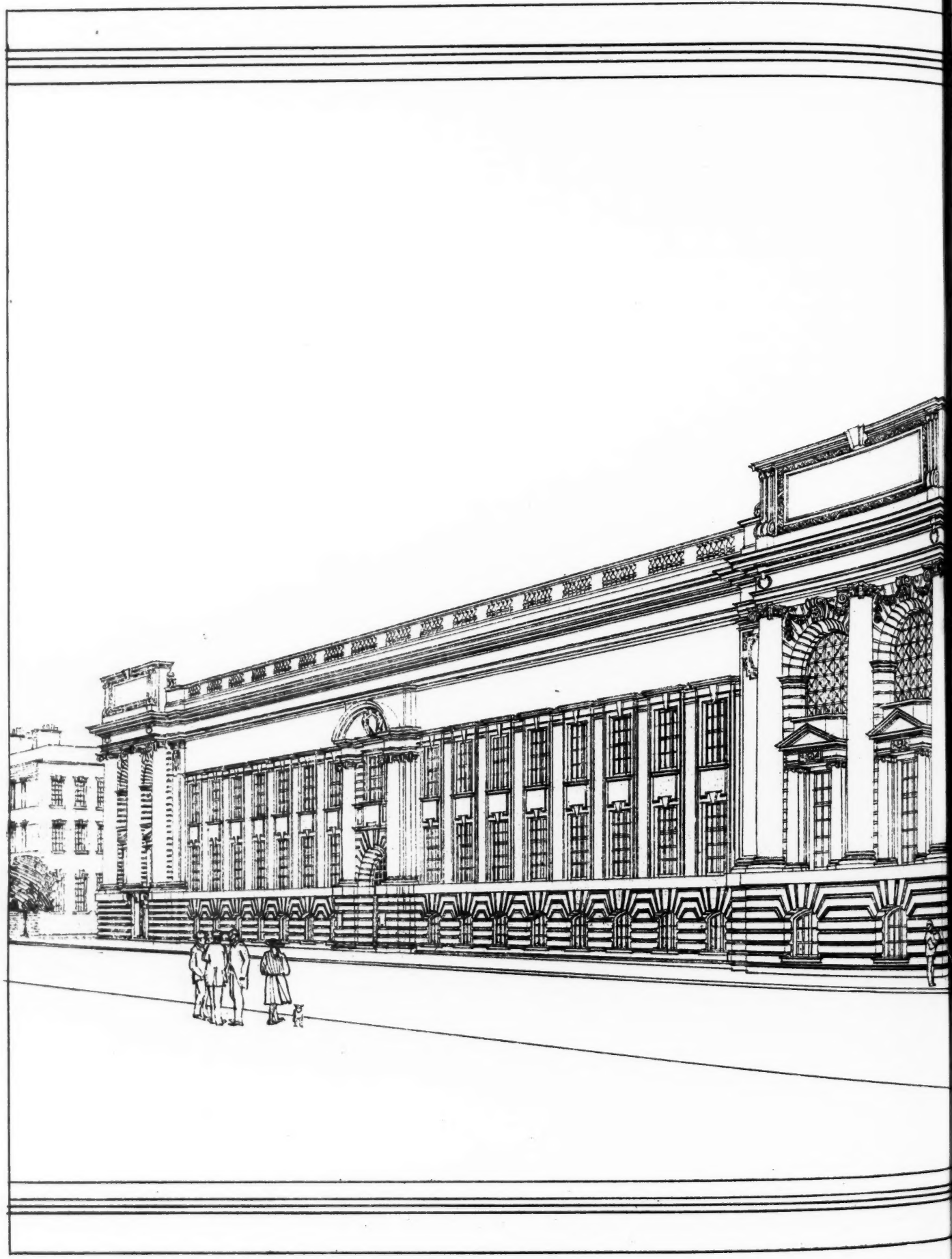

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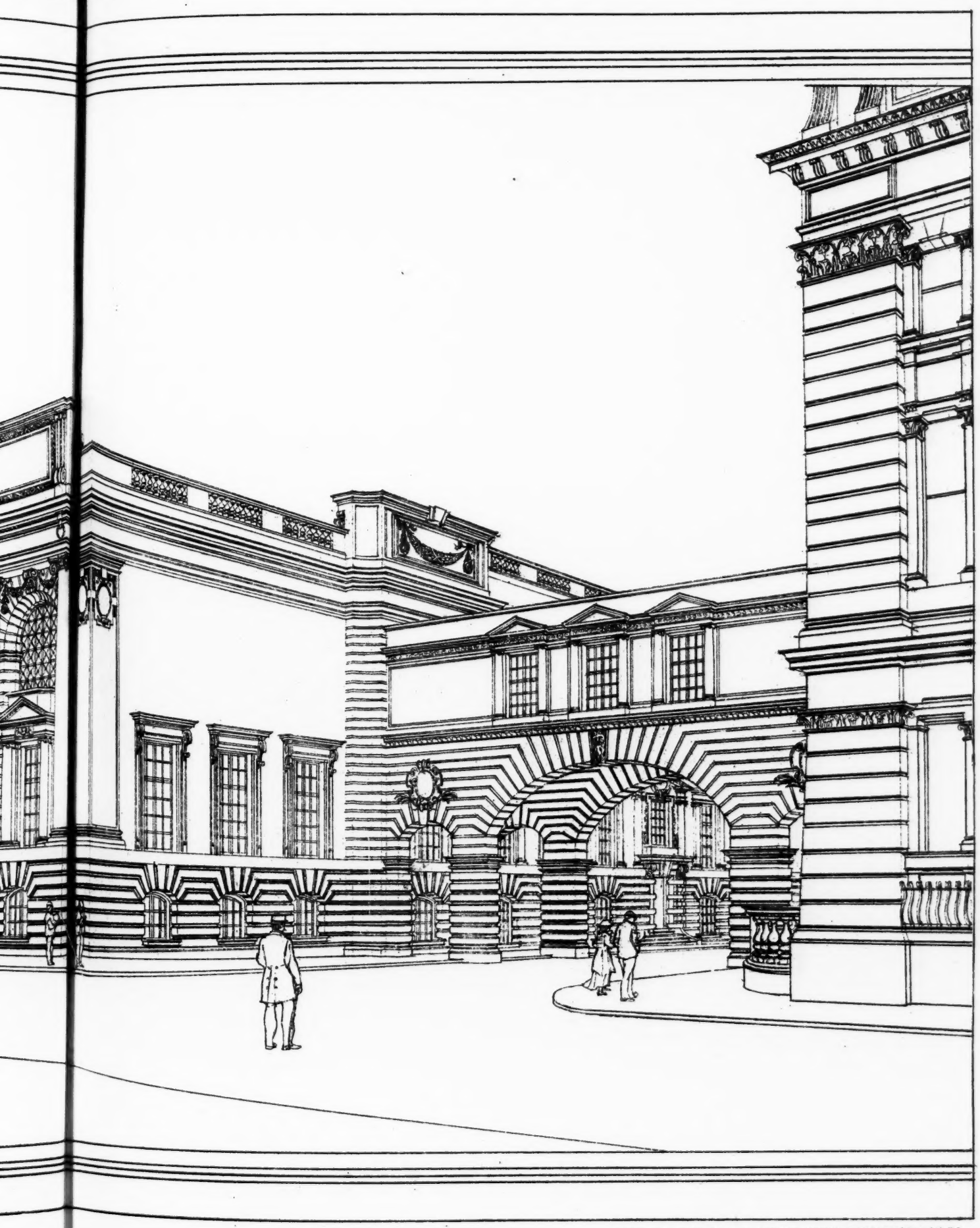
PERSPECTIVE VIEW.



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